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PROBLEMS IN DIABETES*

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In a brief consideration of such a large subject as diabetes I must necessarily restrict my remarks to the most essential points, and for that reason I shall try to cover the field under nine main headings.

1. *What is diabetes?* Essentially, diabetes means a condition in which, from any cause, the supply of endogenous insulin in the body is deficient. As the result of this lack of endogenous insulin, the glucose derived from the sugars and the starches of the food can not be completely burned. Consequently, this glucose clogs, so to speak, the human mechanism, the sugar content of the blood increases and when this increase reaches a certain level—a level we call the 'renal threshold—the sugar passes into the urine. At this point, I should call your attention to the fact that the sugar rises first in the blood and does not appear in the urine until it has passed a certain level. This point is of practical diagnostic importance since it indicates that if we are to make a diagnosis of diabetes in its early stages we should look first for this rise of blood sugar and not for the appearance of sugar in the urine much later. A second point of significance is that the height of the renal threshold is not the same in all individuals. In some the renal threshold corresponds to a high blood sugar content, in others to a comparatively low blood sugar level. In fact, in different individuals the renal threshold may be found anywhere between sixty-five and three hundred and eighty milligrams of blood sugar per one hundred cubic centimeters of blood.

As stated above, in diabetes we are dealing with a lessened amount of endogenous insulin in the body. Such a lessening can be brought about primarily by any one of a number of factors, but each of these factors causes first a destruction of the islands of Langerhans in the pancreas, and

naturally it follows that the more islands that are destroyed, the less insulin can the body secrete. This sounds quite simple but the actual problem is not as simple as it would seem from this somewhat categorical statement. The pathologists, for example, tell us that they fail to find that the destruction of the islands of Langerhans increases proportionately with the increasing severity of the diabetes. One might wonder what other explanation can be offered for the markedly reduced insulin secretion in cases in which at post mortem examination the number of the islands has seemed but little reduced.

Just as there can be a temporary functional disorder of the kidneys, of the heart, of the liver, the condition of any of which may improve in time, so there may be a functional impairment of the pancreas which may be temporary or even permanent without necessarily changing the cell structure of the islands enough for the alteration in them to be detected by the microscope. Definite pathological changes do not occur early, unless the organism be subjected to some acute and overwhelming disease. Each cell in the body is a small laboratory unit which functions by itself, and it can function imperfectly long before it becomes destroyed. I feel, therefore, that in the cases in which we cannot demonstrate definite changes in the islands of Langerhans we are dealing with functional changes which, although they can not be demonstrated with a microscope, are just as real and just as pathological as those which can be seen.

2. *The differential diagnosis of diabetes.* Diabetes can have a sudden onset. Following some infectious disease, such as measles, mumps, tonsillitis or cholecystitis, acute diabetes may develop rapidly. In such a case the classical symptoms of diabetes are present: thirst, polyuria, nocturia, voracious hunger, and later loss in weight. On the other hand, diabetes may develop very gradually over a period of months or even years, this slow process giving the body a chance for a physiological readjustment. In diabetes of this type,

practically none of the classical symptoms are present. This fact leads to another practical point, namely, that we should not wait for the appearance of the classical symptoms before making the diagnosis of diabetes. With whichever type of diabetes we are dealing, diagnosis should depend upon laboratory evidence.

Often I have patients come to me with the statement that sugar had been found in the urine in the course of an examination for life insurance, or by the family doctor. They may say that in the course of the life insurance examination sugar was found and when they went to their family doctor no sugar was present. They are ready to condemn the man who found the sugar but come for a further opinion, and whether or not there is sugar, such patients come with the invariable questions, "Which one of these doctors was right?", "Have I diabetes?" Both doctors were right, of course, but if in such a case the urine is examined hourly, it will be found that several specimens will show sugar while others will not show any. Thus in Chart I it will be noted that when the blood sugar runs above the renal threshold, sugar spills over into the urine, and while it is below this threshold no sugar appears in the urine. When this simple diagram is shown to the patient and explained to him, the matter becomes clear to him, and he understands why the findings of the two previous examinations were not in accord.

Usually glycosuria is the first finding in a case of diabetes. The finding of sugar, however, does not establish the diagnosis of diabetes, for as we have stated above, many individuals may have a low renal threshold, and such individuals may have sugar in the urine without having diabetes. Consequently, one should not make a provisional diagnosis of diabetes unless the glycosuria is accompanied by the classical symptoms. On the other hand, any case in which glycosuria is present should be regarded as a case of diabetes until it is proven otherwise, and for the sake of the patient this final proof should be established quickly.

There is but one definite test for the establishment of the diagnosis of diabetes and that is the blood sugar determination. There are many fallacies, however, in the interpretation of this test. It is like everything else, it must be done at the right time if it is to be of any value. Thus, for instance, a fasting blood sugar will not

necessarily establish the diagnosis of diabetes. If it is high, it has served this purpose, but if it is normal, it has told us nothing. A better time, therefore, for the primary diagnosis of diabetes is to make a determination of the blood sugar two and one-half hours after a heavy carbohydrate meal. I do this as a routine measure in order to save the patient's time and my own. My usual directions to the patient when he calls for an appointment are that he should eat for breakfast one-half grapefruit with sugar on it, oatmeal with a great deal of sugar and cream, pancakes with syrup and coffee, and that he should present himself for the test two and one-half hours after this meal. Even though the blood sugar of such a patient might be within normal limits before breakfast, if he has even a mild degree of diabetes, his blood sugar two and one-half hours after such a meal will be at a high level, whereas if he is not a diabetic, his sugar will still be within normal limits. By this simple means, therefore, a dependable differential diagnosis of diabetes can quickly be made. If the blood sugar two and one-half hours after such a meal is normal, then whether or not the patient has had sugar in the urine, one can rest assured that he is not a diabetic.

There is one problem, however, which presents itself in this connection. Having determined that such a patient is not a diabetic, does not mean that he is immune to diabetes, for while the chances are that he will go through life without developing diabetes, he may easily acquire cholecystitis, or tonsillitis, or he may eat heavily and become obese, and any of these conditions may lead to the production of diabetes. Every patient, therefore, should be warned against becoming obese and should be told to have a blood sugar determination after an attack of any infection.

3. Importance of early diagnosis. An early diagnosis of diabetes is of the utmost value to the patient. If an early diagnosis is made, extensive destruction of the islands of Langerhans can be prevented and the patient can live in comfort, whereas a late diagnosis means that he must undergo considerable hardship throughout the rest of his life. In its earliest stages diabetes is a functional disease and there is good hope that the islands may regenerate, as they are not destroyed at first, but rather, as we have said above, are functionally incapacitated. Allen and others have shown that when diabetic dogs are put on

a proper diet with insulin sufficiently early in order to keep the blood sugar within normal limits, the cells of the islands of Langerhans, which just before the diabetic dog was put on this routine, showed swelling and hydropic degeneration, thus a lessened production of insulin, after a certain period of treatment, showed a regeneration, thus an increased output of insulin. This, perhaps the most encouraging piece of experimental evidence which we could have, for we can naturally reason that if this can take place in a dog, it should take place in man as well. Clinical evidence substantiates this clearly, for we know that in early cases of diabetes, if proper control be instituted, the patient's glucose tolerance is increased and general improvement is marked. As a concrete example, I can cite the case of a fifteen year old girl whom I saw first when she was in coma (Table 1). She did not know she had diabetes before this time, for she had no symptoms whatever, although her blood sugar was 460 mg. per 100 c.c. The breath had a heavy acetone odor and the CO₂ was 38.5. These symptoms indicate marked acidosis. The respiration was of the Kussmaul type. The blood sugar and CO₂ determinations were made after the patient had received forty units of insulin one and a half hours previously, so that the original values must have been even higher. The sudden onset of acidosis developing into coma followed an acute intestinal disturbance. Since no symptoms had been present prior to this attack, we can assume that the diabetes, though it made its first appearance in such a virulent fashion, must have been of very recent development. After sixty days of treatment, we were able to discontinue the insulin and later to increase the diet in two stages, in spite of which the blood sugar remained at a normal level throughout the day. (See Table 1). Recently the patient became a bit careless and instead of leading a very active out-of-doors life, changed to a physically inactive school life, with a resultant slight rise of blood sugar. This last note indicates the important fact that though there may be marked restoration of the pancreas, so that one can live practically in a normal fashion without insulin, yet the islands are never completely restored to their normal status, so that the prescribed regimen of life can not safely be disregarded. The old saying, "Once a diabetic, always a diabetic" is only too true, nevertheless such a striking result as that secured in the case I have described

is very encouraging and shows what can be accomplished when we get the case sufficiently early and control it thoroughly.

4. *Functional Diabetes.* As we have emphasized, when diabetes first develops, even though the blood sugar may rise to a quite high level, and the urine may be loaded with sugar, the response to proper treatment is quite rapid and the insulin can soon be discontinued and the patient can live on an almost unrestricted diet. This means that the islands of Langerhans have recuperated to a large extent.

The first changes in diabetes are but functional changes, that is, the cells of the islands become swollen and granulated and put out but little insulin, but they are not destroyed. If nothing is done at this stage, the cells go on either to complete destruction, or at least to complete functional inactivity from which there is no recovery. This does not mean that all the islands are thus put out of business, for some always continue to function, but the severity of any case depends on the number of islands that are destroyed. It is cases of the first type, in which the recuperation of the cells of the islands of Langerhans is still possible, which we call cases of "functional diabetes." I have emphasized and reiterated this point because of the importance of instituting treatment at the earliest possible moment so as to preserve as many of the islands as possible, rather than to give them the chance to go on to that degree of degeneration from which there is no return. Good results can be achieved only if the disease be combatted by treatment in its early stages.

5. *Diabetes in children.* Before the insulin era, all diabetic children died, some sooner, some later, but it was merely a question of time. Today, if properly treated, and barring accidents, practically all diabetic children live. The problem now, therefore, is to determine in what condition these children will reach maturity. Will they be semi-invalids or will they, for all practical purposes be normal men and women?

This is a really serious problem with which we are confronted, for these children must be guided through the critical stages of their development. During adolescence one of two things happens—either the child, under careful guidance and instruction, gains in tolerance, develops in a normal fashion and reaches maturity in a good physical condition with the ability to take care of himself, or, if he is not guided

well and the mother careless or ignorant of the proper routine, the child will gradually lose his tolerance so that by the time he reaches maturity he will have developed a severe case of diabetes, and will have a difficult and life-long problem ahead of him.

The treatment of diabetes in children is too technical a problem for the general practitioner. It requires a thorough understanding of all the factors involved. And, which is even more important, it requires facilities for rendering prompt and efficient service. No matter how much one may know about diabetes, unless he possesses hospital and laboratory facilities, he can not do all that should be done for the child. For this reason I feel that the treatment of diabetes in children should be left to the specialist who is prepared to meet the heavy responsibility which it involves.

6. *Diabetes in the aged.* Diabetes in the aged presents an entirely different problem from that presented by diabetes in children. In the case of the former, we have to deal usually with a mild type of diabetes and if we can keep the urine sugar-free, we have done about ninety percent of all that can be done. An aged patient, however, must not be kept sugar-free on a starvation diet. No patient will or can continue for any length of time on a starvation diet. Life is not worth living at such a sacrifice and the patient himself sooner or later will come to this conclusion. An old person is weakened by a low diet, and although his diabetes may be kept under control, he will become a prey to many other diseases. If an old person can not remain sugar-free on a livable diet, then the logical procedure is to keep him on a liveable diet and make up for the insufficiency of the endogenous insulin by means of the injection of insulin. Most patients object to this, it is true, but as their advisors we should put the problem clearly and frankly before them, and when they thoroughly understand the situation you will find there will not be one in fifty who will object to the use of insulin. Especially should they understand that to start the use of insulin does not necessarily mean that insulin must inevitably be continued always. Once the patient has discovered that the taking of insulin is not a heavy trial, and that it makes his life safer and more comfortable, there will remain no question in his mind as to its value.

An example may be of interest. A lady, some sixty odd years of age, had had se-

vere diabetes for several years, and was on a restricted diet with insulin. Hyperthyroidism then developed and she consulted me. A thyroidectomy was performed after a preliminary period during which she was under treatment for the diabetic condition. The basal metabolic rate was +41, which indicated that the hyperthyroidism as well as the diabetes was severe. In spite of all her troubles, she was one of the most cheerful souls I have ever seen, and she carried out the prescribed routine after she left, to the last letter. In Chart II are given a series of glucose tolerance tests made at varying intervals. They show a steady improvement in the diabetic condition, in fact, a restoration almost to normal. In this case, we were able eventually to discontinue all insulin (at first she was taking as much as 60 units of insulin per day), and now for over three years, not only had her blood sugar remained within normal limits on a practically normal diet, but even her glucose tolerance test is practically normal. It is certainly most encouraging to see a woman more than sixty years of age with severe diabetes and severe hyperthyroidism able to undergo a major operation, and to live her remaining years in comfort such as she has not had for years.

7. *Diabetes and hyperthyroidism.* In about six percent of the cases of hyperthyroidism, glycosuria is present. In view of this fact, glycosuria should not be disregarded, for among these cases of glycosuria, diabetes is present in a goodly percentage. These patients start with mild, functional diabetes, and if nothing is done for them, in time severe diabetes is certain to develop. It is true that in some of these cases glycosuria will disappear without any treatment. If we only knew in which cases this will occur and in which it will not, there would be no problem; but we do not know, and because we do not know, it is our duty to watch these patients carefully to carry them on an appropriate diabetic regimen throughout the pre- and post-operative stages until we can either dismiss them from medical care, or else can adjust their later diabetic routine to their specific needs. There is a definite relationship between hyperthyroidism and diabetes, and for that reason no case of glycosuria in the presence of hyperthyroidism should be disregarded.

As an example I may cite the case of a young girl, twenty-two years of age, in whom when first seen the blood sugar

three hours after a meal was 239 mg. per 100 c. c. The blood sugar was quickly restored to the normal level as the result of a prescribed diet and insulin, and it remained within normal limits even after the insulin was discontinued, showing only a slight rise following thyroidectomy, after which it quickly returned to normal. After the patient was discharged from the hospital, however, the prescribed diet was disregarded, and when she was again seen four months later, her blood sugar was 496 mg. per 100 c. c. and she had heavy glycosuria and acetonemia; that is, she presented all the classical symptoms of diabetes for which she had to be treated in the routine manner. Two similar cases have come under my observation, so that I feel strongly that a high hyperglycemia in the presence of hyperthyroidism is far from being meaningless, and that therefore these cases should be followed for a long enough period for us to feel certain that the patient's weakened tolerance has been restored. In other words, these patients should be treated as true diabetics. They should be given a carefully selected diet of sufficiently high caloric value with enough insulin to act as a buffer to the carbohydrates. These measures will improve the general condition of the patient before the operation, will increase the glycogen reserves in the liver, will decrease acidosis, and will help to maintain the proper glycogen reserve in the cardiac muscles of a heart which is already being overworked. These measures apparently have no specific action on the hyperthyroidism—they are merely physiologic aids which help to support and restore the overworked organism. It is true, as stated above, that in many cases the patient's condition will return to normal after thyroidectomy, even without a selected diet, and without insulin, but since we can not know beforehand in which cases this restoration will occur, these measures are required in all cases.

8. Prognosis of diabetes. The prognosis of diabetes depends chiefly on two points: (a) how early the condition is discovered, and (b) how efficiently subsequent treatment is applied, and continued.

Naturally, the earlier diabetes is discovered, the less damage has been wrought, and thus the more nearly can a normal condition be reestablished. It is for this reason that every patient with glycosuria should be considered as a diabetic and treated as such until proven otherwise. We do not always see these patients in the early stage

of diabetes and then, naturally, we have to make the best we can of a bad bargain. In all cases, the patient should be sufficiently instructed while in the hospital as to his proper diet, routine and the administration of insulin, so that when he leaves the hospital he can carry on intelligently by himself. Without such instruction, all the time, energy and money spent in the hospital is wasted. The diabetic problem is chiefly the patient's problem for it is he who has the responsibility for carrying on his treatment. The physician serves merely as a consultant at various intervals. Diabetic hospitals are not only hospitals but schools where a patient learns his diabetic "a, b, c's". We must not speak of this as "cooperation" on the part of the patient, for it is not cooperation in any sense. It is the patient who has the diabetes, not the doctor. The doctor should not let himself become entangled in such a partnership and be blamed when things go wrong as the result of the patient's own indiscretion or carelessness. The patient's problem should be carefully worked out. He should be guided through the early difficult stages, and should be instructed as to every detail of his later progress. In this way the physician's duty to the patient has been honorably discharged. The rest is the patient's problem—the prognosis rests with him.

9. Diabetic problems for the future. The one question which every patient asks is: "Is diabetes curable? Will it ever be curable?" And we still, unfortunately, must answer, "Once a diabetic, always a diabetic." Still, as we have stated repeatedly in this paper, this is not as hard a dictum as on first thought it would seem to be, for the diabetic problem runs parallel with the cancer problem, or with that presented by pulmonary tuberculosis—in any of these conditions much can be done if we see the patient early. It follows that for diabetes we must do what we have already done for these other two conditions; that is, we must educate the public as to the necessity of early and thorough intervention. Public education has brought about the situation that when a patient with pulmonary tuberculosis is told that he must stop working and go to bed for a period of from three to six months, he will not question the direction. A patient with early cancer is told that he must go to the hospital and be operated upon, and again no question as to the necessity for this edict is raised. On the other hand, when a patient with early dia-

betes is told that he must go to a hospital for from ten to fourteen days in order that his problem may be worked out, and that he may be instructed how to take care of himself, he can't see it! Why? Because of a lack of education along this line. He has never heard of the possibility that individuals who are apparently well and able to work, are only thirsty and have urinary frequency, and perhaps are just starting to lose weight, might have to go to the hospital. So he goes on, gets worse and worse, and eventually lands in the hospital, probably in coma, and pays a high price for his lack of understanding. It is this education of the masses that I feel is one of our future and important problems.

Another important problem before us is the prevention of diabetes. If obesity were prevented, from fifty to sixty per cent of all cases of diabetes would be eliminated. On a conservative estimate, there are in this country over two million diabetics. The prevention of the development of diabetes in fifty per cent of these cases would have eliminated one million cases of diabetes in this country. Show me another disease in the prevention of which such a result could be achieved as easily.

Infections such as measles, mumps, tonsillitis, are factors in the production of diabetes. Here, too, much can be done in the way of prevention in a very simple manner. If the urine of every patient with an infection, or with fever, were examined twice a week during his illness, and once a week for three weeks following the illness, diabetes would be discovered in its incipency.

Last but not least, is the routine examination of the urine and blood in every new case and once a year in old cases. We have made this a routine practice at the Cleveland Clinic. When blood is taken for the Wassermann test, one and one-half cubic centimeters are put into another tube and oxalated in order that a blood sugar determination may be made. It is astonishing to find how frequently a case of diabetes is picked up in this way, even though the history of the patient and his physical examination have given not an inkling that diabetes may be present.

SUMMARY

Diabetes is an incurable condition. If untreated it is progressive in its development and eventually becomes a serious problem. If properly treated, there is a

continuous improvement which in the early cases is almost equivalent to a cure.

All cases in which glycosuria is present should be considered as cases of diabetes until proven otherwise. One must remember, however, that in many cases of glycosuria diabetes is not present.

Diabetes in children is a difficult problem to handle as compared with diabetes in the aged. The destruction of the pancreas seems to proceed more rapidly in the very young, and for that reason diabetic children should be thoroughly controlled if they are to gain in tolerance.

The early stage of diabetes is functional in nature and the best results can be obtained during this early period.

The diet of all diabetic patients must be a livable diet and not a substandard diet. Time should not be wasted in finding out what the maintenance diet of a given patient is, but one should discern rather what the patient's pancreas can do on a livable diet and whether or not insulin has to be given, and how much, in order to control the patient's diabetic condition. It should always be remembered that the patient has to pay for every day he stays in the hospital, and we should try to make this period as short as we can for his sake.

A patient with hyperthyroidism in whom glycosuria and hyperglycemia are present should be treated as a diabetic until the necessity for such treatment has ceased.

The future for diabetic patients is bright, even though the condition can not be cured, but our endeavor should be to prevent or to lower the incidence of diabetes.

Table 1

Insulin Dosage in a Case of Diabetic Coma
(Girl, Aged Fifteen Years)

| Day | Insulin Units |
|-----|---------------|
| 1 | 230 |
| 2 | 110 |
| 3 | 130 |
| 4 | 140 |
| 5 | 125 |
| 6 | 80 |
| 7 | 80 |
| 8 | 80 |
| 9 | 80 |
| 10 | 50 |
| 11 | 30 |
| 12 | 30 |
| 13 | 30 |
| 14 | 30 |
| 15 | 30 |
| 16 | 25 |
| 24 | 10 |
| 38 | 5 |
| 65 | 0 |

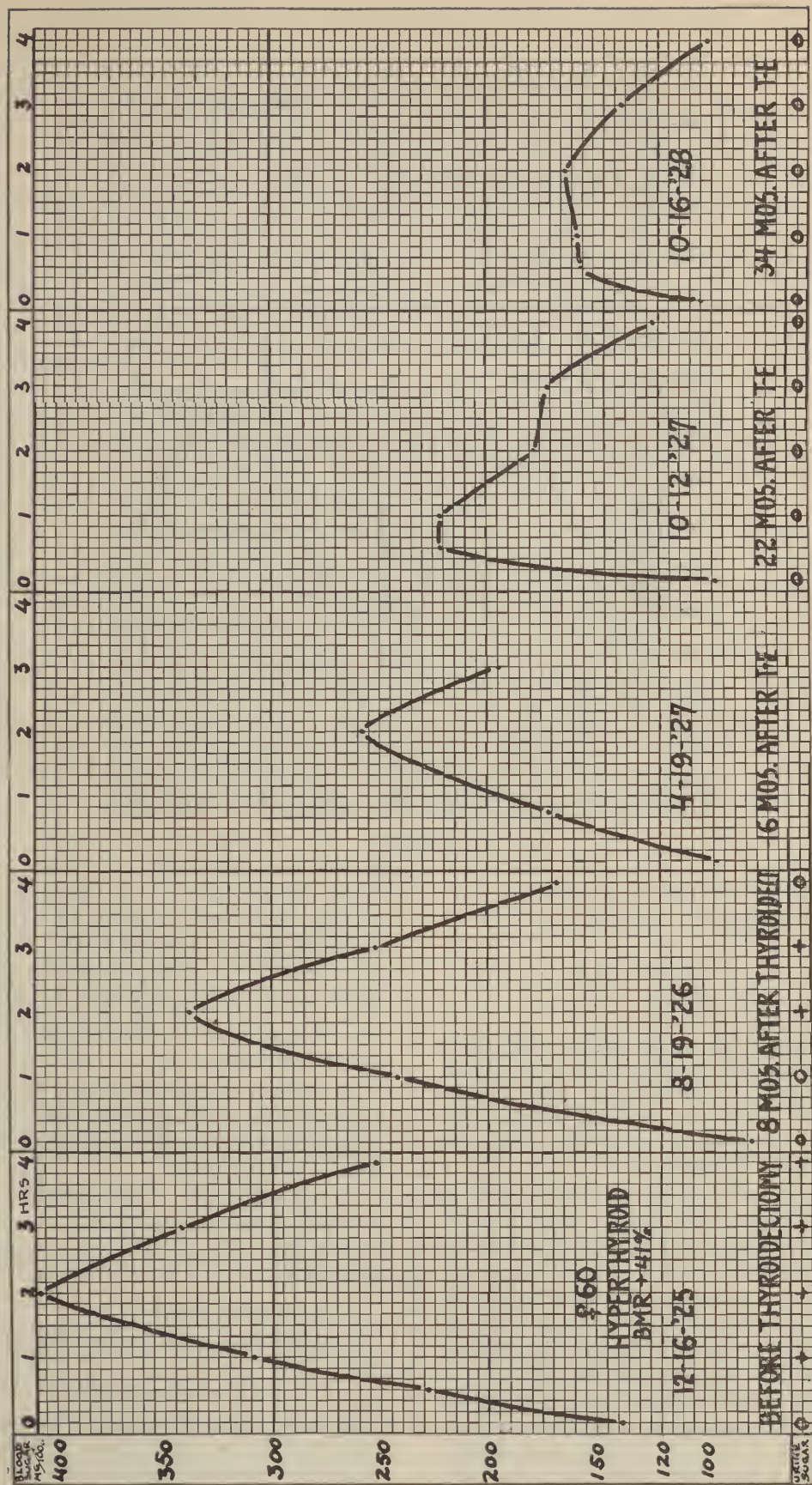


CHART II

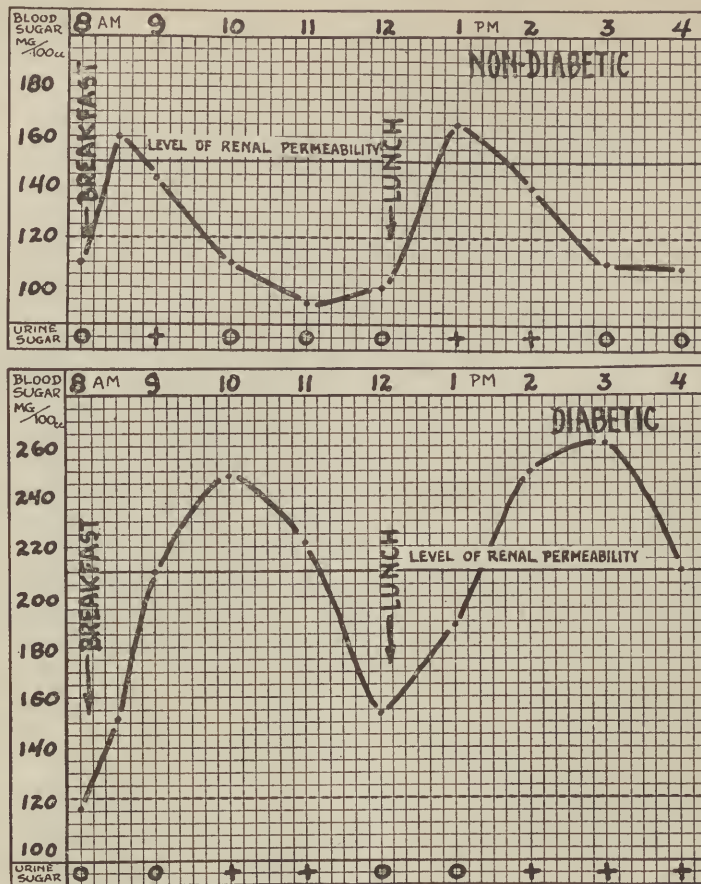


CHART I

THE THYROID GLAND AS A SURGICAL PROBLEM

A. L. BLESCH, M.D.
OKLAHOMA CITY

The thyroid gland is neither entirely a surgical or medical problem but nearly always is both. Until surgery had demonstrated its value, the thyroid disease was classified as medical although little had been done for it medicinally.

Even yet many of these goitres, both so called adenomatous and exophthalmic, come to the clinic with the story of having been treated for "heart disease."

The symptomatology of goitre, that is its toxicity, is manifest (a) in the cardio-vascular, (b) the muscular, (c) the gastrointestinal and (d) the nervous system.

Various classifications have been made based on microscopical histological findings which, from the pathological standpoint, are most confusing. We shall not burden this practical paper with any of

these. If the student of thyroid surgery wishes to inform himself on them he is referred to any standard text. It was not until the writer broke entirely away from these complicated attempts at classification and simplified the types met with to the clinical basis of classification, that the difficulties vanished.

A clinical study of goitre if followed through will show that the following classification will cover practically all the clinical manifestations:

1. Goitre acute (hyperplastic, hypertrophic, exophthalmic).
2. Goitre chronic (nodular, colloid, adenomatous)
3. Adenoma thyroid.
4. Adenoma with malignant degeneration.

ACUTE GOITRE

Unless a long range view of goiter is taken, covering the entire field, giving a proper perspective, one will be very easily misled into the belief that there are very many

different kinds and classification will entangle one in a trackless wilderness where confusion becomes worse confounded. Treatment will suffer irreparable delay, since for true goitre there is but one real cure.

Acute goitre is subject to remissions and hence can well be called recurrent. The clinical symptomatology is so characteristic and the diagnosis therefore so rarely missed except in the few cases in which there is no enlargement of the thyroid, that little needs to be said concerning it, but it is missed as shown by our records and sometimes treated as a heart lesion, of course without benefit unless a remission is at hand when both physician and patient are deceived for the time being. This is the type of goitre so frequently referred to as Graves disease. Hyperplasia is intensely active, proliferation of secretory cells is increasingly augmented and the balance of the endocrines is disturbed and an amazing output of energy is evident in the emotional, glandular and muscular excitations. The carbohydrates are burned excessively and it is this fact which gives us the fairly accurate measurement known as the basal metabolic rate, or for short, the B. M. R. The diarrheas, the sweats, the weakness, the emaciation, the emotionalism, the tremor, the rapid heart rate, are all manifestations of this intense thyroxin intoxication. But the very intensity of the fire that is raging in the gland will lead to burnt out areas which contract and which then in contrast to actively proliferating areas will cause nodulation and give rise to one form of so-called nodular goitre, and so another classification. Another type of nodulation, far more rare is that of adenoma of the thyroid.

Certainly there will be colloid collections in the burnt out resting areas. These acute goitres, may in time after many remissions, reach a resting stage, indeed they may so burn themselves out that there is not enough secreting cells left to supply the normal amount of thyroxin necessary to normal functioning of the body and the patient then becomes a hypo- instead of a hyperthyroid, the so-called spontaneous cure.

In this type of goitre the surgical tendency at the present based on experience is to remove more rather than less of the gland. Recurring surgical hyperthyroidism has been quite common in the past which could be dealt with only by re-operation. Still with the increasing amount of the

gland removed, surgical hypothyroidism is relatively rare.

In our clinic we have abandoned the dictum erstwhile extant that 1-6 to 1-8 of the gland should be left. We are far more concerned about the preservation of the parathyroids and avoiding injury to the recurrent laryngeal nerve.

Hypothyroidism, should it occur, is far more easily dealt with than either of these surgical accidents. The more radical removal of the gland enhances the danger to these two important structures. The nerve is best protected by leaving a thin slice of the gland in the tracheal gutter on either side. If possible, the para-thyroids should be identified during the operation. With increasing experience this becomes easier.

CHRONIC GOITRE

This type of goitre has given rise to almost endless dispute. It is the so-called adenomatous goitre. An adenoma is a neoplasm. In accordance with our present knowledge of neoplastic formations, we believe them due to fetal rests which later on take on activity and grow. An adenoma is a benign epithelial tumor and as is true of most of all the benign tumors, is encapsulated. Such encapsulated adenomata are found in the thyroid gland but their clinical course is quite different from that of the so-called adenomatous goitres. It is true that an adenoma will closely mimic the tissue from which it arises, hence in the thyroid adenoma there will appear abortive attempts to form secretory gland structure which may even proceed far enough to secrete, just as the cells of a metastases from a carcinoma of the liver may secrete bile. But is it not in this way that a true adenoma of the thyroid causes hyperthyroidism. When such a thyroid becomes toxic it is through the contact stimulation to the normal thyroid gland by the growing tumor.

The removal of such an encapsulated tumor suffices to relieve the hyperthyroidism provided its presence is not complicated with actual and excessive glandular proliferation. This is prone to occur where the adenoma has existed for a long time. We have records of many cases where the simple enucleation of such a tumor has been all-sufficient, but true adenomata of the thyroid is relatively infrequent as compared to the so-called adenomatous gland.

Viewed clinically as we have studied this type, we find the disease has advanced slowly with compensatory colloid forma-

tion. The colloid accumulations compressing the cell layers of the ascini, flattening and eventually destroying them. Thus as it advances more and more areas are put out of commission until in some cases actual hypothyroidism as shown by the clinical picture and the basal metabolism rate actually exists. In other cases compensatory hyperthrophy is over-done and hyperthyroidism occurs, giving origin to the so-called toxic adenoma. Clinically we have been unable to differentiate between the symptom complex of Graves disease and toxic adenoma. Microscopically the proliferating toxic areas also appear the same. The colloid areas are dead and functionless. The histological picture of the colloid areas is also very similar to an iodine-colloid gland.

Whether or when and if a so-called adenomatous goitre becomes toxic depends on the balance between colloid degeneration on the one hand and compensatory glandular hypertrophy on the other.

If and when it becomes so it is the same kind of toxicity as exists in the acute type and must be dealt with in the same way.

There is another phase to the chronic goitre. Since the patients often alternate between periods of mild hypo- and hyper-degenerations especially of heart muscle and the parenchymatous organs is prone to occur. These add greatly to surgical risk. In our experience the chronic goitres constitute a much greater surgical risk than the acute and require much greater care and preparation, but the risk is precisely the risk that any patient exhibits with a bad heart, kidneys or liver, and there is nothing special in their pre-operative treatment. The reason these patients at times become very serious risks is that plus the degenerations they are often thyrotoxic too, in which case they present the double danger.

The chronic goitre will oftentimes present a long time history in which the clinical story is (a) progressive enlargement with nodulation but without thyrotoxicosis at least as shown in the clinical picture and the basal metabolism rate. (b) Progressive enlargement with nodulation for years with sudden appearance of persistent mild or severe thyrotoxicosis. (c) Those cases which after some years develop alternating periods of hyper- and hypothyroidism.

In contra-distinction to acute goitre in which thyrotoxicosis is often the first manifestation in this type this symptom

is comparatively late in appearing and does so in one of the above ways.

In the one it is a quick, in the other a slow poisoning.

ADENOMA WITH MALIGNANT DEGENERATIONS

Malignant degenerations may be considered of two kinds, that is, carcinoma and sarcoma. An adenomatous neoplasm is considered prone to become carcinomatous, call it degeneration, change or what you will. According to statistics from various clinics, carcinoma is more common than sarcoma.

The author has operated upon approximately 500 goitres and has never yet seen a malignant disease of the thyroid. He has had many opportunities to see patients with thyroid disease in other clinics and hospitals with which he has been connected and has not seen malignant thyroids there.

In all the years of his practice which have been many, none have passed through his hands, therefore, personally he does not believe that the thyroid gland often becomes malignant. This with him is not a matter of statistics but of observation. Neglected acute and chronic goitre will certainly destroy far more lives than will malignant disease of the thyroid about which of late so much is being said and written.

ADOLESCENT GOITRE

This type of goitre is not deserving of a special classification for the reason that if followed through the years it will be found that it is very frequently the starting point of either acute or chronic goitre.

Often the adolescent enlargement is transient and purely functional and subsides with the subsidence of the gonad overstimulation of puberty. It is merely hyperfunction. These are often purely medical problems. If the subsidence does not occur they can very soon be classified either with the acute or chronic type and are then to be treated as such.

The principal professional problem here is to determine as early as possible whether we are dealing with a purely functional aberration which will yield to medicinal measures and time or with organic disease which will not do so. In the former time is our friend, in the latter our enemy.

MORTALITY FACTORS

In the acute goitre of the severe type in the early days, table deaths were not un-

common in even expert surgical hands, and although unknown today are comparatively rare. Our greatest surgical risks today are to be found in the severely acute cases which have been iodized for long periods of time before coming to operation.

During the past year these are the only cases in which we had to content ourselves with a single lobectomy at one sitting.

Table deaths have usually been due, we think, to the operative strain over-loading an over-driven heart. The emotional drive also of the anticipated operation played no little part. This drive has killed such patients before they have been taken to the operating room. The confidence of the patient in the surgeon, who in his frequent pre-operative visits talks things over freely with him or her, is, in our experience, much better than the so-called method of "stealing" the gland. We have found that this method properly done makes the patient keen to have the operation, but no standardized method will fit all cases.

Rectal etherization has helped us with some of our most dangerous cases.

A single lobectomy in the very highly toxic cases meets two dangers: (a) the danger of an operative death, and (b) the danger of an overwhelming post-operative thyro-toxicosis. This done, although the patient may not show marked clinical or basal metabolism rate improvement in the interval, the second lobectomy can be done with what seems to us almost impunity.

We have done no ligation since the advent of the iodine treatment. In the severe cases where formerly a ligation was done, we are now able to do a lobectomy. This is very much more satisfying to the patient who feels that he is on the way to the surgical end.

Post-operative thyrotoxicosis occasionally occurs but is not so much dreaded since the iodine era as before. Those cases which have been iodine "cured" furnish the greatest thyrotoxic risks. As stated, we meet this in the severe cases by a single lobectomy.

Here is a good place to submit just what we believe iodine does, and how it acts. That it does act promptly and strikingly, we are all agreed.

1. Colloid storing is strikingly initiated.

2. The colloid filled acini show a marked flattening of the cells, as if from pressure. Under compression, secretion is diminished.

Therefore what iodine really does is to induce a more resting stage to the gland, in other words it precipitates a remission. Operation should always be done during *diminuendo* and not during *crescendo*.

THE GOITER HEART

Lahey has grouped cardiac conditions in the thyroid diseases under the general term of "Thyro-cardiacs."

A careful clinical study of the heart in the thyroid patient will place it in one of three classes.

1. The fibrillating heart of the acutely toxic and of the exhausted old chronic. These hearts are tired out.

2. The muscle degeneration heart, that is myo-carditis.

3. Either or both of the above valve lesion, the leaking heart, what iodine and rest will not do for these hearts in preparation of the patient nothing but thyroidec-tomy in one or two stages will do. That is the fibrillating will often continue to fibrillate, the anasarco of the myocardioc and the leaking heart will not altogether disappear until a part or all of the gland is removed. This done, it is remarkable how these seemingly hopeless hearts will come back.

SURGICAL ACCIDENTS

1. Hemorrhage.

2. Injury to recurrent laryngeal nerves.

3. Injury to parathyroids.

Hemorrhage is best forestalled by careful hemostasis during the operation, but even then I think it will occur in perfectly good surgical hands occasionally.

Indication is to promptly reopen the incision and secure the bleeding vessel or vessels. There is no other treatment and any attempt at any other method is but wasting valuable time.

The recurrent laryngeals have given me personally more uneasiness in thyroidec-tomy than any other phase of the operation. It has been a comfort to me in talking with other surgeons who do this operation to find that they too suffer in a like manner. Hoarseness and temporary loss of voice following the operation is not uncommon. This is due to edema and swelling and sometimes operative trauma, also the muscles of the neck are sore and attempts to talk are painful, consequently many of the patients voluntarily desist. Personally, so far I have been fortunate. The nerve is

best protected by leaving that portion of the gland which it is intended to preserve as a thin slice with the posterior capsule in the tracheo-esophageal furrow where the nerve usually courses.

The para-thyroids are attracting the attention of goitre surgeons more and more. While it is true that the preservation of one or two of these little bodies will suffice for the physiological needs of the body, the results on calcium metabolism of a shortage is so extremely serious that their conservation is of the utmost importance. Now surgeons are stressing the more radical removal of the thyroid the danger to the para-thyroids as well as the recurrences is greatly enhanced.

The only certain means of avoiding their operative destruction is to visualize them during the operation. Their blood supply must be taken into account also.

Since they are liable to be mistaken for fat globules their recognition is not always easy. We are now having all our gland specimens carefully examined for these important little bodies.

Para-thyroid deprivation is easily recognized and its treatment quite well understood.

ANESTHESIA

The problem of the anesthetic in surgery of the thyroid blends more intimately with that of the strictly surgical, I think, than any where else in the surgical domain.

This is especially true in the extremely toxic goitres. The psychology of many of these patients is peculiar, they are apprehensive but usually courageous. Their desire to get well is intense as is every other emotion as well as physical functions.

This is a part of the syndrome. By playing upon this it is possible to prepare the mind so that the patient will courageously cooperate.

If this can be done successfully, local anesthesia is the anesthetic of choice for no field yields itself so fully to infiltration as this.

If on the other hand the patient goes on the table apprehensive I am convinced that ethylene and oxygen is the superior general anesthetic.

The tendency of nitrous oxides to cyanosis is in this condition to be avoided.

Ether, the writer is much afraid of.

IRRADIATION

Irradiation with either radium or the X-ray is no longer used in our clinic. We feel that it is too uncertain in view of the brilliant results following carefully executed operative procedure.

We have operated irradiation cases and have met with great difficulty in the surgery and in our judgment of just how much to do.

Irradiation also hits the para-thyroids as well as the thyroid. If enough is given to destroy the thyroid, surely the para-thyroids will suffer too. It is being, or has been abandoned by practically all the leading workers in this field.

MEDICAL TREATMENT OF GOITRE

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I should like to begin this brief summary by saying that the treatment of toxic goitre is a medico-surgical problem, both being vastly important in their respective places, with perhaps the medical side playing the heaviest role with the spectacular climax being taken by surgery.

Both medicine and surgery during a considerable period, made individual claims of superiority, but now it is recognized by both that neither can be quite successful alone and that a proper combination of the two constitute the most gratifying method so far adopted in the management and cure of toxic goitre.

In the colloid goitre, treatment both prophylactic and actual is almost altogether medical, occasionally a colloid goitre may reach such proportions that operation may be necessary both for comfort and appearance. Colloid goitre is most largely of endemic origin, but sporadic colloid goitre occurs in other than the so-called goitre belts.

Marine has shown that the prophylactic treatment of colloid goitre is very satisfactory since the conclusion arrived at was that endemic goitre occurred in iodine poor localities. Naturally, its prophylactic treatment would be the administration of iodine. Marine and Kimball were very successful in preventing goitre in a large number of school children by the use of iodine, when compared with a similar number in the same locality the results were rather spectacular.

Marine's method was to give sodium iodide in .2 gram doses daily for 10 days twice a year, Spring and Fall. This seems quite easy and is very satisfactory in regions where soil and water conditions demand it. Such wholesale prophylactic precautions, however, are not necessary in Oklahoma, but we do meet with sporadic colloid goitre not infrequently. It is perhaps some error in assimilation that brings this about in non-goiterous areas. They usually appear at about puberty and may either disappear or persist. Iodine does not seem to have the beneficial effect reported in colloid goitres found in the goitre belts. This is perhaps because the sporadic goitre is due to the lack of assimilation and is therefore etiologically endogenous, while the endemic goitre is of exogenous origin and responds more readily to iodine when supplied.

It is our method in the treatment of sporadic colloid goitre to give iodine moderately: 5 drops of Lugol's solution once daily for one week to be followed by the same sized dose twice daily for two days out of each week for a much longer period. If then it seems iodine resistant, thyroid substance may be given, one or one and one-half grain doses daily and the patient closely observed during this period. This may afford the gland the rest it is needing and a reduction in size follow.

A colloid goitre may reach such proportions as to require surgical interference, when it does it usually has progressed beyond the colloid stage and developed a nodular structure due to adenomatous change or to degenerative cysts.

Toxic goitres either exophthalmic or adenomatous with hyperthyroidism are most frequently encountered in this locality and for proper treatment should be differentiated. Both have symptoms of hyperthyroidism differing in method of onset. A few of the classical differential points may be thus summarized:

EXOPHTHALMIC

1. Exophthalmus—60 percent.
2. Thrill and bruit over thyroid.
3. Symmetrical goitre of uniform consistency.
4. Parallel development of goitre and toxicity.
5. Rapid development of toxicity to an advanced degree with periods of remission.
6. Etiology. Unknown. Psychic trauma, infections, etc.

7. Typical blood pressure 140-60.
8. High percentage of lymphocytes.
9. Rarely sub-sternal goitre.
10. Rarely pressure signs.

ADENOMA

1. No exophthalmus.
2. No thrill or bruit.
3. Asymmetrical, nodular goitre.
4. Goitre of a years duration before toxicity develops.
5. Slow development of toxicity without remissions.
6. Etiology, endemic.
7. Typical blood pressure 160-100.
8. Normal blood picture.
9. Most substernal and intrathoracic goitre are adenomatous.
10. Pressure a common complaint.

Non-toxic adenoma is not influenced by medical treatment unless it should be converted into a toxic adenoma by the injudicious use of iodine. It is the belief of Plummer, Boothby, Arnold Jackson, and others that iodine administration in adenomata of the thyroid brings about a toxic state. It would therefore seem advisable to avoid medical attempts at treatment and refer such goitres to the surgeon who may deal with them surgically if for any reason they are producing discomfort by pressure or are cosmetically disfiguring, or as a prophylactic measure against toxicity with its accompanying cardiac degeneration and hypertension which is too often found in long standing cases of gradually progressive toxic adenoma.

The medical care of toxic adenomatous goitre is a very exacting thing. These are usually of long standing, cardiac degeneration frequently has occurred, blood vessel changes and hypertension with hypertensive heart. It is our belief that such a goitre should be surgically removed when proper preparation has been carried out. The heart muscles should be digitalized, a period of rest in bed, and in the presence of toxic symptoms, iodine should be given. For the brief time of its administration preoperatively, it can do no harm and may do considerable good by lowering the basal metabolism rate and relieving the nervousness as a toxic adenomata may be mixed with hyperplastic involvement. Then too, an adenomatous goitre may after all be an atypical exophthalmic goitre, such a mistake in diagnosis is always possible and in that case much bene-

fit would be derived from the use of iodine.

It is my belief that a clinician should advise operation on non-toxic adenomata when it is a definitely palpable tumor as a prophylactic measure since we have no medical prophylactic treatment for adenomatous goitre. I am referring to prophylaxis against toxicity either of hyperthyroid origin or malignancy. Plummer has stated that three patients out of every five with adenomatous goitre will develop hyperthyroidism. Carcinoma, when it develops, originates in pre-existing adenoma in 90 percent of instances, and statistics indicate that carcinoma constitutes from one to two percent of thyroid cases coming to surgery. Again if the tumor were low in the thyroid where progression into the mediastinum was likely, I should insist on the removal more strongly than if high in the lobe.

Aside from the advice for prophylactic surgery, a time most generally comes in adenomata when definite surgical indications arise. They are: conspicuous deformity, pressure symptoms of any type, increase in the rapidity of growth and development of toxicity. The clinician should be quick to observe and detect these conditions, and advise prompt action since cardiac changes are so prone to accompany this type of goitre. As stated before, this type of goitre which has existed for a long time presents one of the most difficult problems to the physician and surgeon, and despite every effort to strengthen the heart muscles with digitalis, rest and diet, to allay nervous irritability with Luminol or some other sedative, to relieve fatigue with rest, to allay mental apprehension by personal contact, to build resistance by proper nutrition and iodine for a few days. These patients will often be forced to assume a grave risk at operation which is their only source of restoration.

The post-operative care is cardiac support, comfort with morphine and for a short time the continued use of iodine.

EXOPHTHALMIC GOITRE

This, geographically, is perhaps the most widely distributed form of goitre. There seems to have been a very definite increase in the incidence of this type of goitre in the past few years. It is not unlikely that the stress of war and the strenuous post-war living conditions have had much to do with the increased incidence of exophthalmic goitre. It is not always correctly diagnosed, yet it has most distinct and characteristic symptoms.

The onset is sudden, compared with the slow development of hyperthyroidism in the adenomata. It is much more common in the young. The average age in a series of cases studied by Arnold Jackson was 26 years. It is more common in women than men in the ratio of 5 to 1. Whereas adenomata bears a relation in favor of women of 7 to 1. Exophthalmic goitres will progress to a crisis if untreated, following this if the patient survives a period of remission ensues in which there is a general improvement with a small percent undergoing spontaneous cure, but definite damage is done to the cardio-renal system.

The symptoms, as in toxic adenoma, are those of hyperthyroidism plus the more intense nervous and psychic disturbance and the eye signs which include exophthalmus of Parry, Graves and Basedaw, the wide fissure of Stellwag, the lid lag of von Graefe, the poor convergence of Moebius, and the infrequent wrinkling of Dalrymple, all or any of these signs may be present and in some cases none may be found.

The increased heat production with the elevated basal metabolism, the warm moist skin, good appetite with progressive weight loss, serve to establish the diagnosis.

In treating exophthalmic goitre one must not lose sight of the fact that this disease shows a definite tendency to remissions and treatment instituted at or near the period of remission may receive credit to which it is not entitled.

What ever may be the cause, the principal expression is through the thyroid gland. The therapeutic effort therefore has been to diminish its activity. This has been attempted in various ways, by the use of X-ray and radium, by the injection of boiling water, by ligating an artery thereby diminishing the blood supply. All of these have been advocated and used with good results. There is abundant proof that the use of X-ray diminished the activity of the thyroid and its use was increasing in popularity until a better method was discovered which is a subtotal thyroidectomy in an iodine remission, this enables the surgeon to do a one step operation and eliminate completely the old lobectomies, ligations, etc. During the entire evolution of the treatment of goitre it has always been recognized that adequate resection was the most spectacular and satisfactory method; if it did not kill, the cure was quicker than any other. Plummer claims that the use of

iodine in exophthalmic goitre would take away shock of operation and rob it of its high mortality in which claim he is eminently correct. The proper use of iodine relieves a patient of the major symptoms, lowers his basal metabolism rate, quiets his mental turmoil, and allows a gain in weight. The dosage varies with the severity of the case under treatment, usually ten drops of Lugol's solution three times daily will serve in a few days to bring about the remission desired.

This will be indicated by a slowing of the pulse rate, a substantial fall in the metabolic rate and loss of the mental apprehension and fear so characteristic of this disease. It is no longer necessary to "steal" the gland. The patients can be told the day and hour of their operation. In the beginning of the treatment, Luminal serves to quiet nervousness and aid in sleep and we generally use it.

If, on entering the hospital, the patient is in a crisis or near crisis, and is unable to retain medication because of vomiting, we then give Lugol's solution in 40 to 60 drop doses by enemata which in two instances recently has given enough relief to enable us to begin oral administration and to establish an iodine remission and successful operation.

In the use of iodine in exophthalmic goitre, the relief of symptoms is so great that the patient is apt to be lulled into a sense of false security and allow his remission to pass without operation. It will be much more difficult to secure a second remission and operation may have to be done under more toxic conditions. The heart, as a rule, does not need the attention that it requires in toxic adenoma, neither does it respond to digitalis as does the heart of the adenomata. Dr. Plummer states that the mortality definitely decreased at the Mayo Clinic with the discontinuance of digitalis. Dr. Arnold Jackson, while deferring to Plummer, is not ready to discontinue digitalis. We use it when the heart seems definitely damaged, which is found in patients who have had one or two remissions and exacerbations, and in patients who have considered iodine a cure and did not take advantage of the first remission for operation.

Post operatively the patient should again be closely observed by the internist. It is our routine to give Lugol's solution in 40 drop doses per rectum three times daily until the patient swallows easily

which is usually the second day. We then give it by the mouth in ten drop doses three times daily while the patient is in the hospital. In about a week post-operative, the patient is ready to go home. We then instruct a guarded course as to activity, but not too rigid lest we establish a fear complex. We attempt to encourage, so that a feeling of optimism may be established replacing the apprehensive fear which is so characteristic when these patients are first seen.

We then instruct them to take Lugol's solution for five days twice a month for two months, and after that to take it for five days once a month for 6 months, and then discontinue. The post-operative home dose is 5 drops.

We like the patients to return for observation at the end of three months. If they are so placed that they can not, we request them to write to us.

CONCLUSIONS

There is no longer a medical treatment for toxic goitre, likewise there is no longer a surgical treatment, for it is now definitely medico-surgical. Certain general principles are applicable to all cases but each one has individual characteristics which should be recognized and given its proper consideration.

GYNECOLOGY AS PRACTICED IN OKLAHOMA*

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In choosing this subject, I was guided by several considerations:

First: General practitioners have listened to high-powered technical discussions of "Carcinoma of the Cervix" and "Infections of the Female Pelvis" until they are tired of these subjects. It seemed to me that it would be better to have a non-technical discussion of conditions as they exist, with some recommendations for changes which would improve these conditions.

Second: I feel that some of the doctors need criticism, both for their sins of omission and those of commission. So I shall criticize, however, this will be done in a friendly, constructive way. I hope it will be received in the same spirit.

*Read before Surgical Section, Oklahoma State Medical Association, Oklahoma City, Okla., June 28, 1929.

For the past several years it has been my good fortune to be associated with Dr. J. F. Kuhn of the clinical gynecological service at University Hospital and Dispensary. Here we are able to see and study a goodly number of cases which represent almost every conceivable gynecological condition and complication. These women are sent in from every county in the state. In going over the histories of these cases we were struck by the fact that a great many of these women had been sent in to the hospital for treatment without having had any examination. Not only was this true of the cases sent in on the gynecological service, but other services as well. Of these cases there was a very high percentage that had received what we considered to be very poor advice and treatment.

This condition was found so frequently that for the past 18 months we have incorporated into our histories, the following questions: (1.) When did you first see a doctor about this? (2.) Did he examine you? (3.) What did he advise in the way of treatment? Let me make it very clear that we allow no patient to criticize her home doctor, nor is she lead to believe that we find any fault with his management of the condition.

On cases other than those of gynecological service which we were asked to see in consultation, we found that only 3 out of 86 cases had been examined vaginally. It is our opinion at this clinic, that no woman has had a complete examination until the pelvis has been thoroughly explored. This applies not only to cases with frank gynecological complaints, but to any case in which the diagnosis is more or less obscure. We furthermore believe it to be the duty of each doctor to educate his clientele up to the belief that detailed physical examinations are necessary, not only during sickness, but during health, as this is the only way we shall ever be able to find a cervical carcinoma while it is still a small discrete nodule, in fact, the only curable stage.

When I say detailed examination, I mean to include a bimanual and speculum examination. I do not expect the average practitioner to have either the technical knowledge or the equipment necessary for doing some of the insufflation or lipiodol tests for tubal patency. These belong just as much to the gynecological specialist as urethral catheterization does to the G. U. specialist. The purpose of this paper is not to discuss these technical things, but ordin-

ary simple things which every doctor should do, but which, in fact, are very seldom done.

In addition to bimanual and speculum examinations, a microscopic examination of the urine is necessary before an opinion can be expressed on a case complaining of lower abdominal pain. This specimen must be catheterized. Failure to do this simple thing has caused many women to lose one or both ovaries and tubes, and then continue to suffer because of their pyelitis. Other pyelitis cases have been operated for appendicitis, only to have more severe recurrences after the appendix has been removed. All of this could have been so easily prevented, had the physician only examined the urine pre-operatively.

Another type of case that is very frequently mis-handled is the acute tube, or the acute exacerbation of a chronic tube. As you know most of these cases are gonorrheal in origin. As you also know, gonorrheal pus will, in time, sterilize itself, provided it is handled right during the acute stage. The proper management of these cases consists of rest in bed, heat, externally and internally, the internal heat being applied by means of hot douches and hot retention enemas every 4 to 6 hours. After a few days of such management, the patient is over her acute symptoms. There is no pain, no fever, no tenderness, nor distension. Many of these cases require no surgery when so handled. If it is an acute exacerbation of a chronic tubo-ovarian infection, this conservative treatment is hardly so efficacious, because of pre-existing adhesions. However, it is surprising to see how much effect this treatment has on even the dense, firm fibrous adhesions so commonly seen in these cases. After it has been continued a while a gradual return of mobility of the pelvic viscera can be noted. Tenderness and fever leave rapidly, so it is of value in these cases because it gives us a more rapid method of preparing them for operation.

We think that only conservative surgery should be done on this type of case. Every scrap of normal ovarian tissue is saved. If the tubes are occluded, plastic operations should be attempted to hold them open. With the increasing number of sterile women we think this type of operation should be done, even though, in a few years, the abdomen must be opened again. At this clinic we feel that is practically never justifiable to remove an acute tube.

Another very frequent type of mis-handled case is the endocrine. Just a few words about them. We are seeing more fat women now than formerly. We see too many who have been empirically put on thyroid. I feel that practically all the thyroid products are such powerful drugs, and consequently, capable of doing so much harm if used wrongly, that one should have very definite, clear-cut proof that there is a distinct hypothyroidism before advising the use of any of the thyroid extracts. Such a proof cannot be gotten without basal metabolic rate studies by a competent technician. If it is necessary to put the patient on thyroid treatment, she must have her B. M. R. checked frequently while on treatment. Of course, I know that many of the women go to the drug stores and buy thyroid, using the dosage advised by the clerk. It is your duty to point out to your clientele the dangers of such.

Of the last 92 cases sent in on our service, in which bleeding was an important symptom, there were the following diagnoses, all of which were determined, either by operation, the microscope, or autopsy:

| | |
|---------------------------------|---------|
| Incomplete Abortions..... | 24 |
| Carcinoma of Cervix..... | 23 |
| Fibrosis of Uterus..... | 17 |
| Hypertrophic Endometritis..... | 12 (pp) |
| Submucous Fibroid..... | 9 |
| Polypus of Cervix..... | 2 |
| Sclerocystic Degen. Ovaries.... | 2 |
| Ectopic | 2 |
| Sarcoma of Endometrium..... | 1 |

Of these 92 cases, 31 or over 1-3 had had no vaginal examination before entering the hospital. Seventeen of these cases came in with a diagnosis of "menopause." These two things show conclusively that a good many women in Oklahoma are not getting a square deal in a gynecological way. Five of the carcinoma cases had been treated locally for over six months, without a diagnosis having been made. There had been no examination of tissue microscopically. Let me stress this point—in any intractable hemorrhagic cervicitis you are not giving your patient good service if you do not obtain a specimen for pathological study. This can be done in your office, without an anesthetic. The important thing to remember is to cauterize thoroughly, after securing the specimen. The actual cautery should be used and all raw surfaces must be thoroughly fried. This not only controls the hemorrhage, but closes the lymphatic

spaces effectively. In addition, if the cervix is not malignant, the actual cautery is the best treatment known for any other kind of cervicitis.

Since the details of spinal anesthesia have been worked out as well as they have recently, our advice to women, who were formerly considered inoperable, must be changed. This applies especially to the hypertension cases. Women with systolic pressures of over 200 have been successfully operated at this clinic. So we see that surgical relief can now be given certain cases in whom we formerly thought surgery was contra indicated.

In closing I will say that I know I have read a very elementary paper. I offer no apology for it, however, because these simple things I have mentioned must be changed before we can really make gynecological progress in Oklahoma. The time is past when we can treat cases of uterine hemorrhage for menopause. A diagnosis can be made, provided proper study is given the case, and it must be made if the patient is going to receive rational treatment. The only way this can be done is by making more and better examinations. If this paper has been instrumental in stressing this one point, I shall feel that your time has not been wasted listening to it.

RELATIVE PHYSICAL VARIATIONS WHICH OFTEN CAUSE SERIOUS DYSTOCIA

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OKLAHOMA CITY

The occurrence of dystocia in cases that seem normal or near normal, I believe, is worthy of our time and consideration. And I also believe that if we study these cases that we can isolate the ones that may give us trouble and we would be better prepared to meet with the problem that presents itself at delivery. This would leave the baby and sometimes the mother in a much better condition. How many times do we see a child that has a slight or marked spastic paralysis that can be traced directly or indirectly to a prolonged or difficult labor? Many mothers give a history of bladder, rectal and pelvic disturbances following difficult or instrumental deliveries. I have, in making this study, become convinced that a large percentage of these injuries can be prevented. The treatment of

an absolutely contracted pelvis is definitely known, but where there is only a slight contraction with an overgrowth of the child, careful consideration is necessary. Such consideration will avoid hours of prolonged labor, with possible final application of forceps and loss of baby or mother. It is a review of these border-line cases that I wish to discuss with you today, stressing their diagnosis, prognosis and treatment.

CLINICAL ASPECT OR CLASSIFICATION

A classification of these border-line cases is unsatisfactory because no particular group of findings is common to all cases. Therefore, we will have to point out certain physical features which indicate probably dystocia or bradystocia. You are familiar with the patient with infantile features who has the justo-minor pelvis. These patients are not hard to recognize as they are usually short of stature, small bones, short arms and short legs. They have infantile genitalia, small vulva, labia minora and majora are not well marked, the vagina is small and narrow, cervix conical and long, the uterus is small, even at term, and often we are misled because the child is small.

In the simple flat pelvis, we are only able to determine it by our measurements as the anterior-posterior diameter (both internal and external conjugates) is decreased.

The funnel type of pelvis, most frequent form of contraction, 44 percent of contracted pelvis in white women, is not so hard to recognize clinically, because they have the features of hyperpituitarism or acromegalia. These patients have masculine features; that is, large short bones, short long bones, hands and feet are short and wide, and there is excessive hair over the body. They have large hips and usually a marked lordosis. Not all patients that are short and fat have contracted pelvis, but patients who have thick short bones should be regarded as belonging to this class. These patients with slight contractions, who do not deliver at term and have a prolonged pregnancy, may have some endocrine deficiency. From the consequent delay in the onset of labor, a marked disproportion results due to the overgrowth of the fetus. A few of them show some toxemia and due to the shape of the pelvis they may have posterior positions. In a primipara at term, unless there is some obstruction, such as contracted pelvis or

malposition of fetus, the fetal head should be in the pelvis. If it is not, we should look for the cause and try to correct it or be prepared for an abdominal delivery. We have all had cases belonging to this class who have had difficult, prolonged labor, with the loss of the child.

TREATMENT

The first principle in the treatment of these cases is not to attempt any vaginal operation unless one is sure that it will not be necessary to do an abdominal operation. Avoid contamination of the patient by not making vaginal examinations and making rectal examinations only when absolutely necessary.

The second principle in the treatment is that if it is necessary to do a Caesarean section, the sooner it is performed the better it is for the patient. Early recognition and operation will avoid exhaustion and dehydration. It should be done before the bag of waters ruptures. If the bag of waters has ruptured we have a potentially infected case, for we know that the vagina always contains some pathological bacteria.

Our method of treatment depends upon the stage of labor in which we see the patient, the number of vaginal examinations that have been made, and the type of pelvis.

A great many of these cases will deliver spontaneously if we give them a test of endurance. Sedative treatment, using morphine and magnesium sulphate, with maintenance of nutrition and fluid balance, will avoid lowering the patient's resistance during this test.

I believe that high forceps and version have no place in the treatment of contracted pelvis.

If the presenting part is well engaged, being below the ischial spines, the case should be delivered through the vagina.

The induction of premature labor by packing or bagging has not proven to be satisfactory, except in a carefully selected group of cases.

If a Caesarean section is indicated the low cervical section under local anesthesia and gas seems to be the best procedure.

I wish to present a few photographs and slides of patients that come in this class. The first is a negress.

UNIVERSITY HOSPITAL

Case No. 39372.

Para I Age 12

B. P. 130-94

Measurements

| Patient | | Normal |
|---------|-------|----------|
| 20 cm | ISp | 23-26 cm |
| 21 cm | ICr | 26-29 cm |
| 27 cm | ITr | 30-31 cm |
| 17 cm | E.C. | 20-21 cm |
| 17 cm | R.Obl | 21.5 cm |
| 19 cm | L.Obl | 21 cm |

Type of Pelvis: Justo-minor. (generally contracted pelvis)

Presentation: Vertex. *Position:* R. O. P.
Height of Fundus: (MacDonald) 37 cm.

Test of Labor: 24 hrs. *Delivery:* Caesarean section. (Bag of waters unruptured).

Wt. of Child: 3610 gms. (8 lbs.) *Length:* 51 cm.

This photograph and slide tells its own story, the type of pelvis is that of a generally contracted (Justo minor) complicated by a large baby as shown by the height of Fundus (MacDonald) 37 cm, which proved to be true as the child weighed 3610 gms. or 8 pounds and was 51 cm in length and posterior position and we feel that we were justified in doing a section.

HOLMES HOME OF REDEEMING
LOVE

Case No. 1700.

Para I Age 18, Height 54 inches, Weight 107 lbs. B. P. 108-74

Measurements

| Patient | | Normal |
|---------|---------|----------|
| 21 cm | ISP | 23-26 cm |
| 25 cm | ICr | 26-29 cm |
| 27 cm | ITr | 30-31 cm |
| 17 cm | Ex. Con | 20-21 cm |
| 19 cm | R. Obl | 21.5 cm |
| 19 cm | L.Obl | 21 cm |

Type of Pelvis: Justo-minor (Generally contracted pelvis) Rachitic

Presentation: Vertex. *Position:* R. O. A.
Fundus: 34 cm.

Test of Labor: 31 hrs.—Caesarean section (membranes unruptured).

Wt. of Child: 2895 gms. (6 1-2 lbs.)
Length: 47 cm.

This photograph and slide, as you see, is very much like the one just shown. Generally contracted pelvis but in addition the patient has some signs of Rachitis. The presentation is a right occipital anterior. Here again the (MacDonald) or height of fundus shows that we have not an excessively large baby. Some of you no doubt have seen this patient before. Dr. John Osborn Polak of Brooklyn, N. Y., used this patient at the University Hospital for clinic on contracted pelvis. He recommended that we give her a test of labor before we attempted any operative delivery, as you see she had 31 hours, but she was not in hard labor all that time.

This slide shows the method of making the MacDonald measurement of the height of fundus, which I believe is a great aid in determining the term of pregnancy.

HOLMES HOME OF REDEEMING
LOVE

Case No. 1564.

Para I Age 19

P. B. 180-120

Measurements

| Patient | | Normal |
|---------|-------|----------|
| 26 cm | ISp | 23-26 cm |
| 26 cm | ICr | 26-29 cm |
| 32 cm | ITr | 30-31 cm |
| 21 cm | E.C. | 20-21 cm |
| 22 cm | R.Obl | 21.5 cm |
| 22 cm | L.Obl | 21 cm |

Type of Pelvis: Rachitis flat

Presentation: Vertex. *Position:* R. O. P.
Fundus: 33 cm.

Test of Labor: 36 hrs. *Delivery:* Spontaneous

Wt. of Child: 1390 gms. (3 1-4 lbs.) 7th month premature

This photograph and slide is that of Rachitic flat. The (MacDonald) or fundus is 33 cm. Showing that the fetus must be small. The presentation was vertex right occipital posterior. As you see, the child was very small, 1390 gms. or 3 1-4 pounds. She delivered in her seventh month and was in labor 36 hours. Had this patient been at term, a Caesarean section would have been necessary.

UNIVERSITY HOSPITAL

Para I Age 28 Height 64 inches. Weight
188 pounds. B. P. 150-88

Measurements

| Patient | | Normal |
|---------|--------|----------|
| 25 cm | ISp | 23-26 cm |
| 27 cm | ICr | 26-29 cm |
| 30 cm | ITr | 30-31 cm |
| 21 cm | E. C. | 20-21 cm |
| 22 cm | R.Obl | 21.5 cm |
| 22 cm | L.Obl | 21 cm |
| 7.5 cm | I.Tub. | 11 cm |

Type of Pelvis: Funnel (masculine)

Presentation: Vertex. *Position:* R. O. P.
(Floating). *Fundus:* 34 cm.

Test of Labor: 56 1-2 hrs. Still birth (for-
ceps).

Para II Age 29. *Position:* R. O. P.
Fundus: 39 B. P. 130-90.

Test of Labor: 14 hrs.—Caesarean section
Weight of Child: 4800 gms. (10 1-2 lbs.)
Length: 52 cm.

This is another case similar to the one just presented. This slide shows the usual results of waiting on a funnel or masculine type of case. At the first delivery we waited until the child was dead and then delivered a macerated fetus by forceps; at her second delivery we gave her a test of labor of 14 hours, and performed a Caesarean section. The baby was large, weighing 4800 gms. (10 1-2 pounds). Length 32 cm. This shows a marked overgrowth of the child in spite of attempts to keep the child small by diet and several attempts at induction of labor by Watson's method—quinine, castor oil and hot soap suds enemas. We even used pituritim in three minimum doses. All Caesarean sections were the low cervical as recommended by Dr. DeLee.

SUMMARY

1. All cases that show relative physical variations should be carefully diagnosed and classified so that when labor starts we would have some idea as to the probable outcome.

2. All cases of relative physical variations should be considered for low surgical Caesarean section.

3. Once we attempt a vaginal delivery it should be completed rather than perform a section. Of course, this depends largely upon the asepsis and the number of vaginal examinations that have been made. In

a well regulated hospital it may be permissible.

4. The McDonald measurement is a great help in determining the term of pregnancy.

5. The only way we can decrease the maternal and fetal mortality and morbidity in these cases is to recognize them early clinically.

1208-9 Medical Arts Building.

MANAGEMENT OF PERITONITIS DUE TO PELVIC INFECTION

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CHICKASHA

One more illustration of the many changes in the medical world is brought out by the fact that it has not been many years since all abdominal pus cases were considered operative. It has been learned, however, that there is a real danger in operating an acute pelvis and that many even acute cases will clear up without surgery.

In all the acute infections of the female pelvis, whether it be specific infection or the more serious infections following abortions or labor, "hands off" is the watchword. Especially is it true that during the height of the infection, too much medication is too often the rule rather than the exception. The patient, herself, probably takes a good purgative, then she informs her doctor that she is bilious, which causes him to prescribe a course of calomel. By this time she is sent to the hospital and thinks she is ready for an operation. Instead of this the proper care for such a patient consists of absolute rest in bed, splinting the bowels with morphia—and by that I mean enough morphia to keep her comfortable—an ice cap to the abdomen, no purgative, but preferably a daily enema to evacuate the lower bowel. I deem rest so essential I make as few bi-manual examinations as possible and then only with a view of drainage.

Now comes the stormy and trying times when the complications of relatives sets in. It was Oscar Wilde, if I recall, who said, "Relatives are a tedious pack of people, with no knowledge of how to live, nor the smallest instinct of when to die." Certain will this tedious pack of relatives be that they have knowledge of when to operate, asking the physician over and

over if he is going to allow the patient to lie there and die.

The majority of cases will clear up under the treatment just outlined and the Neisserian infections will not only clear up but in many cases the patient will be able to bear children. These cases may be kept in the hospital only a week or so after they are comfortable; and then they may be allowed to return home providing they are kept quiet there. If they have a history of repeated attacks, it is better to allow them to go home for a few weeks rather than operate too soon. A few of these cases will go on to abscess formation which may precipitate in the pelvis and which can be drained through the vagina.

In general peritonitis the patient is not only willing but may insist upon an operation. However, a checking of the mortality of those operated, added to the fact that obstruction of the bowels either by paralysis or volvulus is the cause of the death of a patient and not the free pus in the abdomen as we used to think, will make it easier for the physician to convince the patient and the "tedious pack of relatives" that an operation is not wise.

In these cases the early and often repeated use of the gastric lavage is of great service. The patient may suffer some discomfort the first time the lavage is used but the relief is so great that the patient will often request it thereafter. Moreover, its early use will prevent acute dilation of the stomach; it will also remove the toxic contents of intestines which have regurgitated to the stomach and may prevent enterostomy.

Pus in the abdomen from an acute appendix, when seen shortly after rupture, many times tests the skill and judgment of the operator. "Watchful waiting" is by far the most trying for both physician and patient, but each case must be decided upon its own merits. My experience with local peritonitis does not justify the medical or "watchful waiting" treatment; for many times local peritonitis is produced by a gangrenous appendix which can be removed without rupturing and the incision closed without drainage. However, the old adage "When in doubt, drain," is still good. Such drainage properly placed and gradually removed in order not to produce pressure necrosis into the bowels not only saves time but is also less dangerous.

If a local abscess is present, after walling off with sponges to prevent general

soiling, gentle exploration may reveal an appendix in abscess which can be removed easily. However, if the exploration requires rough handling of the intestines it is much safer for the operator simply to place drainage (by which I mean two rubber tubes) and then trust nature to handle these cases. Again, I suggest the use of morphia to splint the bowels and the use of saline solution, six to eight ounces per rectum every two hours, to keep fluids in the body.

In general peritonitis, I advise the use of the ice cap to the abdomen and the free use of morphia and medical treatment as outlined previously in the treatment of pelvic infections. When pus gravitates to the pelvis in the female, it has been customary for many years to drain through the vagina but so far as I know the male, less favored in his anatomy, is either left to his own fate or the pus drained through the abdominal wall.

By examination through the rectum a surgeon can easily feel the collection of pus in the pelvis which he can easily drain through the rectum. My method is to operate under local anesthesia, preceded by morphia, gr. 1-4, and Hyoscine, gr. 1-100, one-half hour before operation.

Take care to see that the sphincter is well dilated to prevent interference with drainage. Then explore with a Leur syringe to locate pus, using care to avoid puncture of the bladder wall. After locating the pus, open the bowel with a knife and dilate it still further with a large curved forcep. Use no drainage tubes although it may be necessary to keep drainage incision open by the use of gloved finger every few days. We have never had any trouble with the opening not closing in due time; in fact we have had some very gratifying results by using this method.

In caring for general peritonitis one must not forget the general condition of the patient, watch for acidosis and lack of fluid in the tissues, also food starvation. However, I think the majority of cases are likely to receive too much food rather than too little.

In cases where the drainage has blocked off or the pus is not near the surface, he is not justified to submit the patient to an exploratory operation for drainage. Pus, let me repeat, does not always have to be drained as we used to believe.

Our percentage of acute pus cases in small hospitals is far greater than in the larger ones and if we are to progress and keep our standard up we must be able to handle these cases.

In summary: I wish to stress the liberal use of morphia and use of the gastric lavage, in acute pelvic cases and general peritonitis and keep "hands off."

IS THE ADDITION OF SAUER KRAUT JUICE TO INFANT MILK FORMULAS ANTIRICKETIC?*

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MUSKOGEE

Successful artificial feeding of infants may be accomplished by several methods, providing a few concrete principles are employed, regardless of whether sweet or acidified milk is used. This has been brought out very strikingly by Dr. McKim Marriott in his "Notes on Infant Nutrition."

Sufficient calories must be given to satisfy demands of the growing child. Second, it must supply the proper food elements to promote growth: protein, carbohydrates, fat, mineral salts, water, vitamins A, B, C and D. Third, it must be digestible and free from harmful bacteria.

By scientific investigation, it has been found that eighty percent of infants can take sweet milk formulas and gain weight. Twenty percent cannot take the sweet milk formulas due to the high buffer substance in cow's milk. Such infants do not have a sufficient amount of hydrochloric acid to neutralize this substance as it requires three times more acid to neutralize this in cow's milk, than in mother's milk. It is this type of infant that responds so satisfactorily to acid feeding, unless it is suffering from some infection. When this condition is found and proper treatment rendered, the child regains his normalcy much more quickly, as he can take more calories with an acid formula.

Up to this time, there have been four methods of acidifying milk, with more or less success: Hydrochloric, acetic, citric, and lactic acid, the last two being more generally used. Dr. Hess a few years ago introduced the citric acid method by the use of lemon juice with the addition of egg yolk. Credit for the popularity of the lac-

tic acid method must go to Dr. McKim Marriott, who has been teaching this method of feeding in the Pediatric Post-Graduate courses given at the St. Louis Children's Hospital, and for this reason, lactic milk is being used more widely and successfully than the other methods.

In feeding infants, these concrete principles must at all times be kept in mind, as we are building the child's body not only for today, but for tomorrow, so that his pre-school days may be free from infection, and prevent him, in later life, from organic diseases. A year ago, it occurred to me that kraut juice could be used in the same manner as the other acids, and perhaps with more beneficial results.

Cod liver oil is called "Bottled Sunshine." This is brought about by the codfish eating vegetation containing vitamins, and they in turn are stored in the cod's liver, and hence cod liver oil, which promotes growth and health in the same manner as the sun.

The sun is necessary for existence. We owe our life and nourishment directly or indirectly, to solar radiation. Vitamins are derived from the vegetable kingdom, due to the sun. Chlorophyll (the green coloring of the plant) which the plant contains under the sun action, confers on it this power, and if it is not present, there are no vitamins. They can be obtained only from the plant and to a small extent, indirectly from flesh, fat, milk and eggs. Their chemical composition is unknown, but by boiling, heating, or drying, decomposition and oxidation reduce their value.

Cabbage is a vegetable cultivated in the field, under the rays of the sun, and kraut juice is obtained from cabbage. Chlorophyll is present; therefore, vitamins must be present. In the process of making kraut juice, heat, boiling, or drying is not employed. It is acid in reaction, containing 1 1-2 percent lactic acid, 1-2 of 1 percent acetic acid, with calcium and phosphorus necessary for bone growth.

The probable antiricketic properties of kraut juice are destroyed by light rays when the juice is put up in glass containers; a putrefaction takes place destroying the potency. Kraut juice in tin containers retains all of its original properties, but up to the present time, there is no known process of preserving kraut juice in glass containers. This was brought out very emphatically in the first few months of my

*Read at the Muskogee County Medical Society, November 25th, 1929.

experimental work. For convenience sake, the mothers were advised to obtain their kraut juice in bottles. Later, I learned that bottled juice was not potent. All mothers were advised to change to kraut juice in tin containers. We could not get in touch with three of the mothers and when their babies were brought to the office for an X-ray of the wrists, they were found to have advanced cases of rickets. These babies were immediately put on milk acidified with kraut juice from tin containers, and the X-rays taken later showed "healing" or "healed" and at this time, complete healing has been accomplished in all three instances.

The X-ray plates were interpreted by a pediatrician of international note, who has done more work on nutritional disturbances of infancy than anyone else in the country. This beneficial result, he claimed, was brought about by the sunlight we had in Oklahoma this Spring, but on making an investigation at the Weather Bureau, it was reported that during the months of April, May and June, we had from seventeen to twenty days of rain, and the rest of the time was too cloudy and cold to place a naked infant out-of-doors.

During the year, seventy-five babies have been fed milk acidified with kraut juice. Unsweetened evaporated milk is used, as it seems to be more especially suited for acidification with kraut juice than pasteurized or boiled whole cow's milk. Sterility, digestibility and uniformity of the composition with evaporated milk are distinct advantages for the acidification where the mixture is thickened with barley flour and a high caloric feeding is desired, as in pyloric spasm or stenosis. Evaporated milk acidified with kraut juice will be mentioned in this paper as "KJEM".

The ages of the children when started on this mixture ranged from one day to six months. These infants have been X-rayed monthly for the determination of rickets, and this procedure will continue throughout the coming winter, to further confirm my experiment.

I intended to do the calcium and phosphorus determinations of the blood, but found there was an objection on the part of the mother when she learned it was necessary to obtain 10 cc.s of blood from the longitudinal sinus or jugular vein, when her child was in perfect health, and this was for experimental purposes only.

This was abandoned, and our conclusions are being drawn from the clinical findings and the X-rays of the wrists. However, the percentage of hemoglobin will be estimated monthly, from now on.

The majority of these infants are now over a year old, and there has been no clinical or radiological evidence of rickets, except in a few cases, where as a matter of doubt, the films came back "questionable" or "mild". The next films were "negative" so we will not consider them positive rickets.

The same method is used in preparing KJEM as is used with the lactic acid milk mixture, except that the milk is not curdled. Kraut juice is added until the mixture turns blue litmus paper red, which amounts to two ounces. This makes a much smoother mixture than lactic milk, and the infant to whom it is fed does not vomit, as do so many who are fed lactic acid milk. Where a change is made to acidified milk with an artificially fed older infant, it can be accomplished more easily with KJEM than any other mixture. Infants fed KJEM all weigh from two to three pounds above normal for their age. Their resistance is greater, due to the mineral contents of kraut juice.

Kraut juice may be used in place of Ringer's solution in cases where a high mineral formula is required, as in Celiac Disease. In this condition, the child does not digest fat, sugar or starches. Kraut juice may also be used in acidifying water in making up formulas where Dryco or Klim is the food of choice. This is done by adding two ounces of kraut juice and four tablespoonsful of corn syrup to a quart of water, using it as a stock solution as each feeding is prepared.

There is now a child under my care who developed Celiac Disease at fifteen months, at which time it is most liable to occur. At seventeen months, she came under my supervision, weighing 17 lbs. 14 oz., the weight of a normal child eight months old, with pinched expression, irritable, skin loose and in folds, loss of turgor, could not walk; and in three months she made a gain in weight to 27 lbs., 11 oz., weight of a normal female child twenty-seven months old, and normal in every way except for the protruding abdomen. She now receives five ounces of kraut juice in the 24 hour high protein diet. With this, she is on a regular diet for a child of her age. Authorities claim this can be done only in one to

two years. I do not think this rapid improvement has been brought about entirely by the use of kraut juice, but I am sure it has had a very important part, due to its high mineral contents, calcium and phosphorus.

Recently, I saw a child two weeks old, weight 6 lbs., vomiting, dehydrated, with loss of turgor, a suggestive picture of pyloric stenosis. The child was being fed lactic acid milk, which I changed to KJEM thickened with barley flour, and immediately the vomiting subsided. In forty-eight hours, it could scarcely be recognized as the same child, the improvement was so great. In two weeks, the child had made a gain of three pounds.

Six weeks ago a child was brought to the office with pyloric spasm. It was six weeks of age, weighing 7 lbs., 9 oz., and had all the cardinal findings of that condition, being treated with skimmed lactic milk and atropin 1:2000 solution, one drop fifteen minutes before each nursing. This was changed to KJEM thickened with barley flour and a 1:1000 solution given one drop fifteen minutes before each nursing. The vomiting subsided and in six weeks, the weight was 10 lbs. 3 oz. This gain was due not only to the thickened KJEM, but a higher caloric diet.

At our recent Baby Health Conference at the Oklahoma Free State Fair, visiting pediatricians tried to find some clinical evidence of rickets in these infants fed KJEM, examined there. Dentists were called to inspect the teeth as to abnormalities in size, anomalies of number, and malposition. The most rigid examination proved that the infants fed KJEM had no clinical evidence of rickets, and all were above normal in every respect.

An infant under my care in an adjoining state was being fed KJEM, rated 100 percent and then took the Grand Sweepstakes prize for all infants at a baby health conference in their city.

KJEM has proved to be more economical than any other acidified milk mixture, due to the fact that no orange juice or cod liver oil need be given. As the child grows older, it is only necessary to increase the number of ounces per feeding, until the fifth month, when Cream-O-Wheat, vegetable soup and meat broths are advised. The following is a standard formula for all infants including prematures:

One pint boiled cool water;

One sixteen ounce can of evaporated milk;

Four tablespoonsful corn syrup;

Two ounces kraut juice.

In conclusion, I found that where acidified milk is desired for infant feeding, KJEM has these advantages:

It is easily digested, palatable, economical and simple in preparation; and,

Second, kraut juice contains minerals, vitamins and lactic acid, and in all probability, is antiricketic and antiscorbutic.

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SURGICAL LESIONS OF THE RIGHT HALF OF THE COLON*

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The major conditions in the right side of the colon for which surgical procedures are demanded are carcinoma, hyperplastic tuberculosis, fistula and actinomycosis. Of these, the most common, is carcinoma, which in this situation produces a definite group of symptoms revolving around physiologic disturbances. The differentiation of carcinoma and hyperplastic tuberculosis is essential, although the treatment for both is extirpation. The principal manifestations of carcinoma in this segment of colon differ from those in the left half, because of difference in the physiologic functions of the two segments, difference in the consistence of the contents of the two segments, and difference in the type of pathologic picture presented by the malignant condition.

In the right side of the colon, the carcinomas are usually large, raw, ulcerating and bleeding growths which are in marked contradistinction to the more scirrhus, annular, encircling malignant growths which tend to produce obstruction of the left half of the bowel. Given a ring carcinoma in that segment of the large bowel in which the content is fluid, obstruction is late; the reverse is true in that segment of colon in which the normal fecal content is formed and hardened. Right colonic carcinomas occur more frequently at the junction of the cecum with the ascending colon than elsewhere. It is rare to find the region of the ileocecal valve invaded unless

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the carcinoma is very extensive; for this reason, together with the pathologic type of the lesion and the fluid content of the bowel, physiologic disturbances, rather than obstructive phenomena, call attention to growths in this segment. The three types of symptoms which call attention to carcinoma of the right portion of the colon are: (1) attacks of dyspepsia, mild in nature, with few localizing symptoms, usually diagnosed as intestinal indigestion or chronic appendicitis in their earlier stages; (2) the accidental discovery of a tumor in the right side, which is not producing symptoms, but which on roentgenologic study or extirpation proves to be a malignant neoplasm, and (3) profound anemia not associated with visible loss of blood, with or without tumefaction. Pain and local tenderness simulating subacute appendicitis, without a tendency to disappear, frequently are early signs of cecal carcinoma. One of the most difficult diagnoses to make without roentgenologic evidence is to distinguish such a growth from a thickened retrocecal appendix which is chronically or subacutely inflamed, which is palpable and pathologic, and which causes intermittent and indistinct symptoms localizing in the right iliac fossa. Irregularity of the function of the bowel characterized by intermittent diarrhea, with periods of normal bowel movements and without a tendency to constipation, frequently are seen in malignant conditions of this segment.

Attention should be directed particularly to the anemia which is one of the most pathogenic symptoms of right colonic carcinoma. This anemia, not associated with loss of blood, but progressive and debilitating, is frequently the first sign which calls attention to the presence of a malignant growth in this segment. Repeated examinations of the stool may reveal occult blood, but most often this profound anemia is confused with primary anemia. No doubt it is due to direct and slow loss of blood, but it is of such insidious onset that weakness, paleness of mucous membrane, shortness of breath, and other signs of anemia are present before attention is directed to trouble in the right half of the abdomen. The explanation of this particular type of anemia is uncertain, but it has been the object of much study by numerous observers. The right side of the colon is concerned almost wholly with absorption, its bacterial flora is rich, its content is liquid, and ulceration in this site

produces marked bleeding less often than that in the left side of the colon. Perhaps there is a perverted or inhibited function of the mucous membrane which results in absorption of injurious products and profound intoxication. Anemia of such intensity as to cause the hemoglobin content to drop to or below 25 or 30 percent, and the number of erythrocytes to decrease to 2,500,000 for each cubic millimeter or even lower, is so frequently associated with carcinoma of the right side of the colon that its presence should suggest cancer of this segment of the gastro-intestinal tract as a likely diagnosis. I believe that with profound anemia, not associated with visible loss of blood, this is a much more likely diagnosis, if pernicious anemia is ruled out, than carcinoma of the stomach or of any other portion of the alimentary canal.

A fortunate and practical fact associated with this anemia is that it is not of such significance regarding operative prognosis as that associated with carcinoma of the left half of the colon. Indeed, one would hesitate to operate on a stomach or on the left half of the colon if the hemoglobin were less than 30 percent, but quite frequently I have removed, either at one stage or by graded operation, malignant growths of the right portion of the large bowel without mortality and with satisfactory end-results, in the face of such anemia. Koons reviewed the cases at the Mayo Clinic a few years ago, in an effort to explain this anemia, and found that the average reading for hemoglobin of seventy patients who came to operation for carcinoma of the right side of the colon during the years 1920 and 1921 was 60 percent. In this series, however, there were nineteen cases of operable carcinoma of the cecum in which the hemoglobin was less than 50 percent, and the average color index was 55+. Koons also called attention to the close resemblance of the blood picture in hyperplastic tuberculosis to that of cecal carcinoma and pointed out that the size of the growth usually was in direct ratio to the degree of anemia. Ulceration alone does not seem to affect the anemia; large growths, however, are more commonly ulcerated. Whipple, Smith and Murphy, as well as Stiles, all have done splendid work on this blood picture, and it seems that the consensus of opinion is that there is profound toxemia from an abnormal absorptive function of the mucous membrane or from toxins produced by the ulcerated surface of the growths. These

growths have a much larger surface from which absorption can take place than ulcers in other portions of the large bowel. Although one must keep in mind that disturbances of physiologic function, such as indigestion, intermittent diarrhea, and the presence of cecal tumefaction and of anemia are the main phenomena which characterize carcinoma of the right side of the colon, and that obstruction is rare in this situation, it is well not to forget that obstruction does occur and that often acute obstruction may be present due to a cecal carcinoma. Acute obstruction of the colon generally may be due to one of three factors: (1) volvulus; (2) intussusception, or (3) slow closure of the lumen of the bowel by a foreign body or by swelling due to an acute inflammatory process superimposed on a malignant condition. Acute obstruction is present in about 5 percent of all cases of obstruction of the colon and comes on most frequently without warning. Its treatment is urgent, since an acute condition is superimposed on a malignant one and a lethal outcome may be expected from either or both, unless immediate and complete relief is obtained.

Differentiation of carcinoma of the right half of the colon must be made, in the main, from hyperplastic tuberculosis, from chronic retrocecal appendicitis which is associated with intermittent symptoms and a palpable tumor, and from actinomycosis. To the last little consideration need be given, since it is rarely diagnosed before operation and usually is recognized when a sinus forms following drainage in appendiceal peritonitis or abscess, and sulphur bodies come from the sinus. Roentgenologic studies may be of some value in identifying actinomycosis, particularly if it is associated with pulmonary lesions or actinomycosis of the neck. Usually the diagnosis is not verified until late in the disease, when formation of sinuses has taken place and the characteristic granules are discharged. Patients with hyperplastic tuberculosis often suffer from associated pulmonary tuberculosis, and on this account carry an elevation in temperature. The anemia is generally not so marked in the early stages of the disturbance. Roentgenograms enable one to make a differential diagnosis in a large majority of instances. Pain is an uncommon and untrustworthy symptom; it varies in type from the dull ache associated with chronic obstruction to an annoying type of pain. Obstruction is not common but it is more likely to be present in hyperplastic tuber-

culosis than in carcinoma. Blood in the stools is an inconstant symptom, but repeated examinations revealing occult blood should be supported by roentgenologic examination to ascertain whether there is an organic lesion in the large bowel.

There are two types of appendiceal disease which are not infrequently confused with a malignant growth of the right half of the colon: (1) an appendicular abscess, and (2) a thickened, retrocecal appendix which produces fixation and causes a false sensation of tumefaction. Occasionally, tuberculosis of the appendix is responsible for the pathologic change. It is apparent that failure to recognize an appendiceal abscess could occur only in a case in which the onset is insidious and in which the symptoms customarily associated with acute inflammation are not in great evidence. Attacks of appendicitis which result in formation of abscess, in the vast majority of cases, are acute and fulminating, but the type of case confused with a malignant growth usually extends over a period of a few months; the main complaint is that the patient has not felt well or has had some minor ailment connected with digestion or that he has been constipated. More frequently, the mistake in diagnosis is that a carcinoma of the cecum is called appendicitis than the other way around. The fact that the patient is young and has a tumor of slow growth, without many evidences of inflammation, influences one improperly toward a diagnosis of appendicitis. But the fact that carcinoma is present frequently in younger persons should be constantly borne in mind. A mass which is fixed over the cecum and has been of slow growth in a person in the fourth or fifth decade of life more often is of malignant than appendicular origin. Fever usually is absent in a case of appendicular abscess, which is slow and chronic in type, or if present, the temperature is rarely more than 100 degrees F. Leukocytosis is slight; the rise is so small as usually to be considered within normal limits, and a sense of discomfort, coupled with some digestive disorder, usually is present. Anemia is not marked, and in the presence of a malignant condition of the cecum anemia is almost invariably a prominent symptom. The presence of the tumor over the line of the right portion of the colon, its painlessness and its fixation, are in favor of the condition being malignant. A roentgenogram taken following a barium enema will, in the majority of instances,

show a characteristic filling defect, but occasionally accurate differentiation is not possible. If exploration is undertaken, or if it is deemed wiser to drain the abscess, and a sinus persists, one should be suspicious of other than appendiceal trouble, and radiographic examination will give evidence of the nature of the ailment.

In the retrocecal type of appendicitis, the appendix, which is as thick as one's finger, is bound by dense adhesions to the cecal wall as well as to the posterior abdominal parietes. It simulates a malignant condition of the right half of the colon, by its very fixedness, slowness of development, and lack of evidence of acute inflammation.

I have seen one resection of the right half of the colon carried out because of inability to differentiate this type of growth even after exposure of the field, and examination of the excised specimen revealed it to be a tuberculous appendix. Occasionally one will perform an exploration with the two possibilities in mind and will open into a retrocecal appendicular abscess or into an abscess between the head of the cecum and the ileum before the diagnosis is apparent.

The diagnosis of right colonic carcinoma should be made at a much earlier date than it usually is made if a careful history is taken and general examination is made on all patients who complain of irregular disturbance of the bowel, of tumefaction in the right side, or of profound anemia without loss of blood from the bowel. To this may be added the valuable and satisfactory confirmation by roentgen ray if the barium enema is used more commonly in cases in which the patient admits disturbance of the bowel.

The treatment for a malignant tumor of the right half of the colon, like that of a malignant tumor elsewhere in the alimentary tract where it is accessible for removal, should be extirpation of the growth together with the gland-bearing tissues in juxtaposition with it and subsequent restoration of the continuity of the bowel. That this should be accomplished in two stages, rather than in one stage, is my conviction; this reverses an opinion that has been held at The Mayo Clinic for a long time, that the resection and anastomosis might be done just as safely in one stage provided decompression of the colon was carried out, either by enterostomy or colostomy, simultaneously. The right half of the

colon is mobile and may be easily separated from its attachments laterally for the following reason: in the course of development, in its rotation up from the left lower fossa of the abdomen, the colon crosses over to the liver and descends into the cecal fossa before birth; there it is attached to the lateral parietal peritoneum by fusion of peritoneum without blood vessels.

Exploration and aseptic ileocolostomy comprise the first stage of resection of the right half of the colon. I prefer to do this through a left rectus incision, first making an exploration of the liver, aortic lymph nodes and pelvis, and last palpating the offending growth gingerly, in order not to spread contamination from it. The cecum is thin-walled and given to abscess formation and any but the most gentle manipulation is likely to rupture it or to rupture an already existing abscess, precipitating peritoneal contamination. After exploration, the ileum is divided about 10 or 12 cm. from the ileocecal valve and implanted into the middle of the transverse colon by an aseptic type of anastomosis, using a three-bladed clamp which I have devised for this type of maneuver.

Mobilization and resection are accomplished at a second stage, using a right rectus incision. After separating the peritoneal attachment to the lateral abdominal wall, one rotates the whole colon toward the median line, wiping inward with gauze, the fat, lymphatics, and other adjacent tissues into which carcinomatous cells may migrate. The ureters and retroperitoneal portion of the duodenum are identified and isolated so that injury may not come to them. Duodenal fistula following resection of the colon is a most unhappy and frequently most unnecessary complication. The colon is removed around to a point beyond the hepatic flexure, and about 10 or 12 cm. of the ileum, which was inverted and dropped back at the preliminary step, is removed with it. Peritonealization of the raw surfaces usually is not difficult of accomplishment and I believe should always be done because of the likelihood of obstruction from adhesion of loops of small bowel to raw points. I have not found it necessary to establish drainage in these resections and believe that when the operation may be accomplished cleanly, it is better to close the abdomen tightly.

This type of operative maneuver has proved satisfactory in my hands and in

the last eighteen months I have not had a fatality from peritonitis from the first stage of the procedure. It is the resection, with the manipulation necessary to mobilize the growth, which is followed by mortality. I believe that it is only with difficulty that one may resect the right half of the colon with a mortality of less than 5 to 8 percent. The mortality will appear to be lower than this if it is computed on the basis of the number of operations done. However, with a graded operation, with adequate cooperative management and with the satisfactory prognosis which accompanies radical removal of these tumors, I believe it is only a question of earlier diagnosis, particularly by the routine application of roentgenologic studies in irritable conditions of the bowel which will forward the discovery of these lesions at a time when extirpation may be accomplished with the optimum of success. The prognosis in these cases is satisfactory because metastasis takes place late and the segment may be sacrificed without undue disturbance of physiologic processes. In 1923, Scholl and I reported a series of cases from the Mayo Clinic in which the patients had been subjected to operation, and we found that 42 percent of the entire group were living and free from metastasis or recurrence over a period of two to fifteen years following operation. Forty-three patients of the 133 on whom complete postoperative data were obtained were alive and well more than ten years after resection.

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THE TRUE STORY OF ACTEROL

Chemists call it by its correct chemical name, **solution activated ergosterol**—the name by which Mead Johnson & Company first supplied it¹. The largest manufacturer of rare sterols in America, early having activated cholesterol² (1925), being first to commercially produce pure ergosterol and to standardize activated ergosterol³ (October, 1927), seeking to protect themselves and the medical profession against substitution, Mead Johnson & Company coined the name **Acterol**—signifying activated ergosterol. The Council on Pharmacy subsequently coined a name, **Viosterol**. As servants of the American Medical Profession, this Company cheerfully defers to its wishes and now calls its product Mead's Viosterol in Oil, 100 D. The product remains the same: only the name is changed.

1. J. Biol. Chem., 76:2.
2. Ibid., 66:451.
3. Ibid., 80:15.
4. Ibid., 76:251.

For additional details see the Mead Johnson announcement in this issue and also watch for special color supplement, Journal American Medical Association, January 18. All Mead products are Council-accepted.

JOINT TUBERCULOSIS

Mather Cleveland and Edwin Pyle, New York (Journal A. M. A., May 4, 1929), made a study of the operative and nonoperative treatment of sixty cases. They undertook to treat these patients with joint tuberculosis in the fundamental belief that elimination of motion in a tuberculous joint is the essential means of effecting a cure. They were given as much sun as is available in New York and kept in bed. As the most effective and quickest means of putting those joints at rest, they used operative fusion. In these sixty patients, sixty-four joints were involved: thirty spines, seven hips, thirteen knees and eight tarsi, making 95 percent of the cases in the spine and lower extremity. Seventy operations were performed on these sixty patients. Sixty-two of these were fusions. Four amputations were performed for extensive disease of the tarsus with sinuses. These four patients responded very rapidly and were able to leave the hospital in a relatively short time. Thirty-two of the sixty patients, or 53.3 percent, have good or excellent results, while seventeen, or 28.3 percent, failed to respond to surgical treatment. Eleven, or 18.3 percent of the total, are still under treatment. The average in the successful groups is four years less than that in the unsuccessful group. In cases of knee joint and tarsus tuberculosis there was 85 and 87 percent of success, respectively. The spines showed about 50 percent of successes and 36 percent of failures, with the remainder under treatment. All of these were old neglected cases with either abscess or active tuberculosis elsewhere. The cases of hip joint involvement, by all odds the least favorable, with associated advanced disease, sinuses and generalized tuberculosis in most instances, showed the highest percentage of failures. Cleveland and Pyle have computed the cost of treatment in forty-four patients whose records were completed by discharge from the hospital or death. These patients spent \$16,985, an average of \$384, for their treatment before applying to the community for aid. The community spent on these patients \$140,918, an average of \$3,246, maintaining them in its various hospitals for an average time of nearly four years under conservative treatment during which time the disease was progressing. After operative treatment the same group cost the community \$41,023, an average of \$932. In studying a selected group of sixteen patients, all of whom left the hospital with excellent results, the authors find that they spent eighty-eight years in various hospitals, an average of five and one-half years, undergoing conservative nonoperative treatment. Three of these patients spent fifteen, twelve and eleven years, respectively, waiting for a knee fusion, a spine fusion and hip fusion. They entered the hospital as children and grew up under institutional care utterly neglected. These patients or their families spent \$9,655, an average of \$603, while the community spent \$112,027, an average of \$7,000, with nothing to show for it except the years spent in hospitals. The same group cost the community from the time of operation to discharge from the hospital \$20,280, an average cost of \$1,267. The authors conclude that the removal of patients from their home surroundings for long periods of years to carry out conservative treatment of joint tuberculosis is an unwarranted hardship which the results in this series of patients have not justified. Particularly do they deplore the institutionalizing of young children.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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EDITORIAL

THE TREATMENT OF HYPERTHYROIDISM WITH SPECIAL REFERENCE TO THE USE OF RADIUM AND X-RAY

Some months ago we stated our belief that there was a probable increase in cases of toxic thyroid conditions or that the cases existing were more likely to be discovered and given their proper diagnosis earlier than in the past. The difficulty in the proper management of hyperthyroidism is due probably, not only to the lack of early diagnosis and appreciation of the ultimate result of untreated or improperly treated cases, as well as bad judgment in the selection of the case and the method

of treatment which shall be applied at the time for its control. Hyperthyroidism is a kaleidoscopic affair; it presents many symptoms, depending upon the time at which it is observed; it is given to recession and severity at times almost with or without treatment. Due to the final profound toxemic state and mortality resulting from delay in recognition and treatment, or mismanagement and misapplication of treatment the proper course to follow should be one of very deep concern to the attending physician.

At the outset the writer would state his belief that in so far as permanent results or "cures" are to be considered, medical treatment is of little avail. On the other hand, it is his belief that hyperthyroidism is a surgical condition and like many other surgical conditions the sooner it is recognized and the sooner a complete eradication or as nearly complete as is permissible, of the gland is done, the more hope we may have for a successful outcome. For a long time X-rays and radium have been applied to the conditions in various stages in the hope that the condition would be controlled and some very fine results have been reported. However, in this connection we would call the attention of the reader to a recent very discriminating article upon the treatment of hyperthyroidism by Edward Rose which, while noting the various systems of treatment, rather largely collaborates the opinion as to radiation, (1) Rose first notes the difficulty of evaluation of any given type of treatment due to lack of exact knowledge of the cause of hyperthyroidism; its relation to the nervous system and endocrine glands; the variability of its course, tendency to acute exacerbations, remissions and even permanent cessation; the confusing temporary effect of rest, hyperalimentation and sedative medication, often component parts of other methods of treatment; the effects of iodine, not yet completely understood and the difficulty of following patients over a sufficient period of time to determine the permanence of alleged "cures" and the paucity of reliable statistics on this phase or treatment. He also notes that ideal methods of treatment should consider the immediate risks, economic and social restoration with a minimum of residual symptoms; the least loss of time and earning power, minimal number of recurrences; apparent effects in the shortest possible time; effectiveness in checking permanently complications, particularly

heart disease, and finally its availability to the average as well as the expert few.

Three principal modes of therapy are in vogue at present, either used separately, in combination or succession. (1) The so-called medical treatment which includes prolonged rest, psychic support, sedation, hyperalimentation, removal of focal infections, at times the temporary use of iodine and in some instances the use of insulin. (2) Radiation, which includes the use of roentgen ray or radium with or without a regimen of rest, the elimination of focal infections and intermittent iodization. (3) Surgery, which comprises ligation, lobectomy, partial lobectomy, subtotal and maximal sub-total thyroidectomy and even total thyroidectomy in certain cases. Surgical treatment is practically always associated with some preliminary rest and iodization, and often with removal of focal infection. Notwithstanding that, he considers medical treatment largely as "skillful neglect" and much less used than radiation or surgery. He notes that Hyman and Kessel report 83 percent of a series of 50 patients economically restored after twenty-five months, with 4 percent of recurrences, although the occurrence of some residual symptoms was admittedly high. The disadvantages are prolonged duration of treatment—from three or four months to two years; the difficulty in persuading the patient to carry it out, the prompt results of operation, ineffectiveness in checking cardiac disease. It is noted that the most ardent advocates of medical therapy advise operations in cases of adenomatous goitre with cardiac involvement. Nephritis and hepatic degeneration are less likely to occur if the thyroid is removed; finally the questionable wisdom of subjecting patients to the vagaries of the spontaneous course of the disease.

As to radiation: Noting the popularity of this treatment he, however, despite the extensive literature on the subject finds it difficult to find more than a few careful statistical analyses of the final results of irradiation. "Most writers have not followed their patients for a sufficient period and are indefinite in their interpretation of 'cures' and improved patients." Culling the reports, he notes the apparent advantage of irradiation as elimination of immediate risks; the comparative ease with which the procedure is carried out and the minimal interference with the patient's ordinary mode of life. The principal objections seem to be: The absence of

conclusive statistics as to the percentage of recoveries; the ineffectiveness in arresting cardiac and other visceral complications; the probable greater likelihood of recurrence as compared to surgical treatment and the prolonged duration of treatment and lapse of time before results are apparent. It is rather interesting to note the diverse opinions he finds. For instance, he notes that Means and Holmes and their associates conclude that roentgen-ray treatment is not ideal, although worthy of trial in most cases and operation was recommended in those who do not respond satisfactorily after three or four months. They consider iodization followed by sub-total thyroidectomy the most desirable program in general. Muir apparently regards radium treatment as a "hit or miss affair."

As to surgery, he admits that to be the most popular single method of treatment at present because of its increasingly satisfactory operative mortality and end results. Judd reported 70.4 percent of 100 cases of exophthalmic goitre either cured or markedly improved six years after operation, and 88 percent of 100 toxic adenomatous cases in the same condition two or three years after operation. Pemberton in 1923, reported 79.5 percent of 311 exophthalmic cases cured or sufficiently improved to carry on their work five and a half years after operation. Only 3 percent were unimproved. Elliott recently reported all of 100 patients with hyperthyroidism of all types, carrying on their work six months to six years after maximal sub-total thyroidectomy—70 percent were perfectly well; 30 percent were conscious of some disability; 4 percent have persisting symptoms sufficient to require re-operation. He also notes the falling rate of operative mortality; varied between 4 to 8 percent; the Lahey Clinic, Boston, mortality for thyroidectomy was 0.52 percent.

Rose contends that the advantages of surgical treatment are: higher percentage of economic restitution; greater effectiveness in arresting cardiac disease; prompt appearance of improvement and fewer recurrences of symptoms. While its unquestionable disadvantages are: The immediate mortality, low though it be, remains greater than with irradiation and the occurrence of postoperative accidents and complications.

The thyroid clinic at the hospital of the University of Pennsylvania is directed by representatives of the radiological, medi-

cal and surgical departments and includes an out-patient and follow-up department. Rose has been particularly interested in observing the effects of radium in "selected cases" of hyperthyroidism (chiefly of the hyperplastic type) during the past two years. The patients selected were those without complication in whom two or three months delay of operation did not seem likely to prove harmful, or advanced cases which were considered poor operative risks. Thirty-eight cases were followed. His final conclusions are as follows:

1. The so-called medical treatment of hyperthyroidism is inferior to surgery and radiation, and should not be used alone unless the patient declines specific treatment.
2. Medical supervision in association with surgical or radiation therapy is of the greatest importance, particularly in relation to visceral complications.
3. Removal of active harmful foci or infection should accompany or precede any type of treatment selected.
4. A trial with radium or roentgen rays is indicated.
 - a. In mild or acute cases of hyperplastic type without complication, where a three or four months' period of observation is economically possible and without risk to the patient.
 - b. In cases of any type which are considered bad surgical risks; in these subsequent operation can often be successfully performed.
5. Surgical treatment is indicated:
 - a. In all frankly adenomatous goitres with hyperthyroidism.
 - b. In all cases of hyperthyroidism with visceral complications.
 - c. In all cases which have not responded satisfactorily to irradiation after four to six months.
6. Until more convincing statistical proof of the ultimate efficacy of irradiation is offered, surgery must be considered, in general, the most satisfactory type of treatment for hyperthyroidism.

To the writer there are two or three outstanding thoughts with reference to the many systems of treatment and they are anticipated in the beginning of these notes; these are that the treatment of hy-

perthyroidism must vary accordingly to the condition of the patient when seen. Certainly in severe toxic crises, surgery or irradiation either would likely end in the death of the patient. At this juncture, skilled medical treatment is of greatest undoubted value in bridging over a time until surgery or irradiation plus surgery may be safely used. It should be noted too that in all cases where irradiation has been used, which later come to operation, the operation is rendered a great deal more difficult by the effects of radiotherapy.

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REPORT OF DELEGATES TO AMERICAN MEDICAL ASSOCIATION MEETING HELD AT PORTLAND, OREGON

The 80th annual meeting of the American Medical Association held in Portland will go down in the history of the Association as one of the best meetings ever held, although the registration was not near as large as it is when the sessions are held in a more central location in the large centers of population, but the scientific sessions were excellent, and the membership has never had a better scientific program.

The scientific exhibits were very complete and the arrangement ideal, and too much credit can not be given the local committee (which must have spent a great deal of time working out the details); and the hospitality extended by the members of the profession in Portland has never been surpassed. In fact, they seemed to anticipate your every desire and we did not hear of anyone who did not have a good word to say for the profession and their friends at Portland.

The entertainment for the ladies was very unusual and, among other things, was the trip through private gardens, which is beyond our ability to describe. Another feature was the horse show, which compared favorably with similar events in any of our large cities. Portland's scenery is very beautiful and the drives up the Willamette and Columbia rivers are as scenic as any you could expect to see in this country or abroad, and on Saturday we were taken to a salmon barbecue, which alone was worth the trip to Portland. Having eaten salmon all our lives out of cans, we did not recognize the delicious flavor of fresh barbecued salmon.

On Sunday all of the beautiful, sporty, golf courses were thrown open to the members and cars were in readiness to take one to any club preferred.

On Monday morning the House of Delegates met in the first session and went through the regular routine, after the report of the credentials committee, after which the address of the Speaker of the House (Dr. F. G. Warnshuis) was made, who spoke very touchingly of four very well known members of the House for several years who had answered the "final summons." When we paused a moment to record our tributes to our loved ones. The speaker announced his reference committee and Oklahoma was given representation on the Legislation and Public Relations Committee; in fact, Oklahoma was given more consideration than we have ever had before; and we hope that at some future date we can invite the meeting to Oklahoma, but do not want to do so until we are able to take care of them and send them home with a pleasant recollection of our country.

The speaker then introduced the president, Dr. W. S. Thayer of Baltimore, who made a short address. No president has ever made a greater effort for the up-building of the Association than Dr. Thayer, as he is full of energy and has made great personal sacrifices during his tenure of office. The speaker next introduced president-elect, Dr. M. L. Harris of Chicago, who as chairman of the Judicial Council has probably done as much for organized medicine and the up-building of the Society as any other person. He is a tireless worker and will continue the work for the up-building of the profession as long as he lives, as he takes great pride in his work and is unselfish in his motives.

Dr. Jerry H. Walsh, secretary of the Board of Trustees, presented the Board's report, which covered all departments of the Association from the Journal which holds its place as the leading general medical periodical of the world, and the influence of Hygea, as the one general health magazine published under scientific auspices, and laid stress on the fact that only 16,000 physicians were regular subscribers, when at least 75,000 should be. Nevertheless, Hygea is now self-sustaining. However, by more united support of the American Medical Association, it can increase its income, both from subscriptions and advertising, and thus be enabled to spread its message and influence throughout the nation. The trustees suspended the Spanish edition of the Journal of the American Medical Association on December 15, 1928, with some reluctance, but there was doubt that the publication was

accomplishing the purpose for which it was originally intended, and much difficulty was encountered in securing the services of competent editors and translators. A number of physicians in Central and South America, who subscribed to the Spanish edition, have entered regular subscriptions for the Journal. The net loss incurred through the publication of the Spanish edition was \$6,537.00, half of which was borne by the Rockefeller Foundation, whose cooperation has been had since the inception of the publication. Hygea was one of the first agencies to use the broadcasting room for conveying health information to the public, in 1923; at first once a month and for the last year and a half, once a week. In August, 1928, Station WBBM installed a microphone in the headquarters building of the American Medical Association and arrangements were made for a daily fifteen minute health talk at 10:00 a. m., and a little later it was arranged for a brief health note to be read each evening from the central station of WBBM.

A health bureau has been arranged for conducting an investigation with respect to capital invested in medicine and the incomes of physicians. The result of these studies will be made available to the committee on the cost of medical care. Questionnaires have been printed and several thousand sent to physicians, in order to obtain figures as to the cost of preparation for the conduct of medical practice on one hand, and the income from medical practice on the other. The Bureau recommends periodical health examinations and also laid stress on the fact that every physician should be prepared to make health examinations when called on to do so and urges that every child be re-examined at suitable intervals.

The Council on Pharmacy and Chemistry have been on the job constantly and you are all familiar with the reports on new and unofficial remedies, which appear in the Journal every week, which is a great help to many members of the profession, as they become familiar with quack nostrums which the layman persists in buying at the corner drug store.

The Committee on Scientific Research reported 22 new grants amounting to \$11,299.00, and recent reports indicate that the work on the new grants is progressing satisfactorily. The Advisory Committee reported on trachoma among the Indians and the committee congratulated them on

the work they had accomplished, and as their work was complete, they were discharged.

The Association has already out-grown their headquarters at 535 North Dearborn Street and the most important questions now commanding consideration by the Board of Trustees has to do with the housing of the business and professional activities of the Association and the committee that has this in charge has some plans which will be worked out in the near future, for an organization whose assets are over two million dollars must have plenty of space for carrying on the large volume of business that is transacted daily.

Dr. Olin West presented his report, which shows the number of Fellows as of May 1, 1929, was 64,915, and we are sorry to report that out of 2,458 physicians registered in Oklahoma (1,628 being members of our State Association) only 877, or practically one-half, are Fellows of the American Medical Association, which is not a very good showing and we trust that before another year rolls around the Oklahoma membership in the American Medical Association will show considerable increase.

The Judicial Council made their report and laid stress on the division of fees, making the recommendation that Section 3, Article 6, Chapter 2, of the Practice of Medical Ethics be amended so that the Section will read:

"Sec. 3. When a patient is referred by one physician to another for consultation or for treatment, whether the physician in charge accompanies the patient or not, it is unethical to give or to receive a commission by whatever term called or under any guise or pretext whatsoever."

The Council on Medical Education and Hospitals presented an extensive report on medical schools and hospitals and the Association has done considerable work in classifying hospitals since Dr. Jabez N. Jackson introduced a resolution recommending same during the time of his presidency of the Association. It is a great protection to the public as well as a decided advantage to the profession.

Dr. Pusey introduced a resolution that a complete and comprehensive history of the American Medical Association be prepared and published, which was adopted and you will hear from same later.

The secretary read the following telegram from the American Bar Association:

"The American Bar Association sends greetings to the American Medical Association on the occasion of its annual meeting and gratefully acknowledges the message of good will from the American Medical Association on its behalf by Dr. Wm. Allen Pusey to the 50th anniversary meeting of the American Bar Association."

At 3:00 p. m. the House of Delegates went into executive session and adjourned at 5:00 p. m. to meet again Tuesday afternoon, at which time the Reference Committee made its report. A motion was made and carried that a rising vote of thanks be extended to Dr. Joseph A. Pettit for his hospitality and entertainment of the House of Delegates. Tuesday night, the officers and members of the House were entertained at a banquet at the Portland Medical Society. The toastmaster was the same who presided at a former meeting of the American Medical Association in Portland 25 years before. On Thursday, the House met for the last time to receive final reports, elect officers for the ensuing year and to select the 1930 meeting place. The following officers were unanimously elected:

Dr. William Gerry Morgan, President-elect, Washington, D. C.

Dr. Ernest A. Sommer, Vice-President, Portland, Oregon.

Dr. Olin West, Secretary, Chicago, Illinois.

Dr. Austin A. Hayden, Treasurer, Chicago, Illinois.

Dr. Fred C. Warnshuis, Speaker of the House of Delegates.

Dr. Gerry Morgan was introduced by the Speaker and made a short, spicy address, followed by the retiring President, Dr. Wm. S. Thayer, who concluded with the remark that there probably had never been a more neglectful president in his duty, but as T. R. said, "I had a bully time." Dr. Albert E. Bulson was elected Vice-Speaker. There were two trustees whose time expired and Dr. Chester Brown of Danbury, Conn., was elected to succeed himself, and Dr. Allen H. Bunce of Atlanta, Georgia, was elected to succeed Edward H. Carey. The selection of the meeting place for 1930 brought out the nominations of Detroit, Philadelphia, Atlantic City and Memphis and on the third ballot, Detroit was selected.

The Woman's Auxiliary made a very excellent report, which was followed by a vote of thanks to the local committee of

arrangements, the mayor and medical profession and the people of Portland and everybody who had helped to make the session a success, and was followed by adjournment; after which the House adjourned.

The President's Reception and Ball took place at 9:00 p. m., and as usual was a very enjoyable occasion.

W. ALBERT COOK
MCLAIN ROGERS
HORACE REED.

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Editorial Notes—Personal and General

DR. E. E. RICE, Shawnee, who was seriously injured in an automobile crash in November, is reported improving rapidly.

DR. and MRS. L. A. CLEVERDON, Stillwater, have returned to their home after a three weeks trip to Florida and other southern states.

DR. RALPH E. MYERS, Oklahoma City, announces the opening of offices at 230 Osler Building, for the practice of X-ray and radium therapy.

The LARRABEE-MARKLAND Laboratories, Tulsa, have purchased the equipment of the Terrell Laboratories and have opened the Medical Arts Laboratories, 411-415 Medical Arts Building.

NOWATA COUNTY MEDICAL SOCIETY held their regular meeting at Nowata, December 5, 1929. Doctors F. R. Dolson, president, and S. P. Roberts, secretary, were re-elected. Both of Nowata.

ROGERS COUNTY MEDICAL SOCIETY elected the following officers, December 16th, for 1930: Dr. W. S. Mason, Claremore, president; Dr. A. N. Arnold, Claremore, vice-president; Dr. W. A. Howard, Chelsea, secretary-treasurer.

WOODS COUNTY MEDICAL SOCIETY elected the following officers at their regular meeting held December 3, 1929: Dr. L. S. Hunt, Freedom, president; Dr. John E. Hammer, Kiowa, vice-president; Dr. O. E. Templin, Alva, secretary-treasurer.

GARFIELD COUNTY MEDICAL SOCIETY elected the following officers to serve for the year 1930, at a meeting held December 19th, at Enid: President, Dr. W. B. Newell; vice-president, Dr. D. D. Robinson; secretary-treasurer, Dr. John R. Walker, all of Enid.

PUSHMATAHA COUNTY MEDICAL SOCIETY elected the following officers for 1930 at their regular meeting December 2, 1929: Dr. D. W. Connally, Clayton, re-elected president; Dr. John S. Lawson, Clayton, secretary; Dr. E. S. Patterson, Antlers, delegate; Drs. G. B. Colby, Darwin, H. C. Johnson, Antlers, E. S. Patterson, Antlers, censors.

LINCOLN COUNTY MEDICAL SOCIETY met in Chandler, December 10th, at the Egbert Hotel,

and the following officers were elected: President, Dr. H. C. Iles, Prague; vice-president, Dr. W. B. Davis, Tryon; secretary-treasurer, Dr. F. H. Norwood, Prague; delegate to the State Medical Association, Dr. A. M. Marshall, Chandler; alternate, Dr. J. W. Adams, Chandler.

OKLAHOMA COUNTY MEDICAL SOCIETY elected the following officers for 1930 at a meeting December 14, 1929: Dr. Earl D. McBride, president; Dr. J. B. Eskridge, vice-president; Dr. Kirk Parks, secretary; Dr. J. A. Hatchett, censor; Drs. Tom Flesher, C. P. Bondurant and W. J. Wallace, delegates to the State Medical Society. They will be installed at a banquet to be held in January.

GRADY COUNTY MEDICAL SOCIETY elected the following officers at its annual dinner, December 12, 1929: President, Dr. G. R. Gerard, Chickasha; vice-president, Dr. C. P. Cox, Ninnekah; second vice-president, Dr. L. E. Woods, Chickasha; secretary-treasurer, Dr. H. M. McClure, Chickasha. The program presented was a symposium on meningitis. Dr. Bloyce Britton, New York City, gave a report on "Eye Symptoms in Meningitis."

LOGAN COUNTY MEDICAL SOCIETY and the staff of the Oklahoma Methodist Hospital, Guthrie, gave a turkey dinner December 17th. An illustrated talk on "Brain Anatomy" was given by Dr. J. C. Stephenson, dean of anatomy of the Oklahoma Medical School. Dr. C. B. Barker, Guthrie, gave a talk on the "Twelve Cranial Nerves in Health and Disease," illustrated by slides. Dr. E. R. Carpenter, Dallas, Texas, a special guest, gave a general discussion on "Brain Surgery."

OSAGE COUNTY MEDICAL SOCIETY held its annual meeting and election of officers December 2, 1929, at Fairfax. The following were installed: Dr. Todd Aaron, Pawhuska, president; Dr. M. Karasek, Webb City, vice-president; Dr. Roscoe Walker, Pawhuska, censor; Dr. M. E. Rust, Pawhuska, secretary; Drs. Divonis Worten, Pawhuska, and C. K. Logan, Hominy, delegates. The principal speaker of the evening was Dr. M. S. Gregory, Oklahoma City, who talked on "Neuroses in the Home."

CREEK COUNTY MEDICAL SOCIETY met in Bristow, December 5, 1929, at the Bristow clinic for its regular meeting and election of officers. The following were installed as officers for 1930: Dr. S. W. Reynolds, Drumright, president; Dr. R. E. Leatherock, Drumright, secretary; Dr. C. L. McCallum, Sapulpa, vice-president; Drs. O. C. Coppedge and J. M. Wells, both of Bristow, delegates; Drs. J. B. Lampton and G. C. Croston, both of Sapulpa, alternates. Dr. E. W. King was elected councilor to succeed Dr. E. W. Reynolds.

STEPHENS COUNTY MEDICAL SOCIETY elected the following officers at its annual election meeting held December 3, 1929: Dr. C. C. Richards, Marlow, president; Dr. B. H. Burnett, Duncan, vice-president; Dr. W. S. Ivy, Duncan, secretary-treasurer; Dr. C. N. Talley, Marlow, censors; Drs. W. T. Salmon and D. Long, both of Duncan, delegates; and Drs. Burnett and Talley, alternates. Drs. J. D. Pate and J. W. Nieweg were hosts at the meeting. when a turkey dinner was served. Dr. B. A. Hayes, Oklahoma City, delivered a lecture on "Prostatectomy."

OKMULGEE-OKFUSKEE COUNTY MEDICAL Societies held their annual meeting and election of officers at the First Methodist Church, Henryetta, December 16. Dr. Dean LeMaster, Tulsa, gave a talk on his experiences and observations during his recent stay in Vienna. Robert M. Isham, Ph.D., director of the Okmulgee Chemical and Clinical Laboratory, discussed "The Schilling Test." The following officers were elected for Okmulgee county: President, Dr. F. D. Sadler, Henryetta; vice-president, Dr. V. M. Wallace, Morris; secretary-treasurer, Dr. M. B. Glismann, Okmulgee; censor, Dr. J. C. Matheney, Okmulgee. For Okfuskee County: President, Dr. J. A. Kennedy, Okemah; vice-president, Dr. A. J. Moyse, Castle; secretary-treasurer, Dr. L. J. Spickard, Okemah; delegate, Dr. J. M. Pemberton, Okemah.

MUSKOGEE COUNTY MEDICAL SOCIETY held a special meeting, December 21, 1929, at which a banquet was served at the Severs Hotel, about forty guests being present. The occasion of the meeting was the retirement of Dr. A. L. Stocks, secretary, and the installation of Dr. Stocks as president and Dr. E. H. Coachman as secretary. Dr. Stocks has served the Muskogee County Medical Society for 15 years. The society took this occasion to present Dr. Stocks with a very handsome watch. The speakers of the occasion were: Drs. C. A. Thompson, Muskogee; W. A. Tolleson, Eufaula; Ned R. Smith and P. P. Nesbitt, Tulsa and J. H. McCullough, Checotah. The meeting was a fine success in every respect and many speakers took the occasion to compliment Dr. Stocks upon his efficient handling, of over 15 years, of a difficult position. Dr. Frederick G. Dorwart was elected vice-president and Dr. H. T. Ballantine, censor.

SOUTHERN OKLAHOMA ASSOCIATION met at Duncan, December 20th. Papers were read by: Drs. D. W. Griffin, Norman; T. C. Terrell, Fort Worth, Texas; F. A. Harrison, Ardmore; J. I. Hollingsworth, Waurika; A. B. Leeds, Chickasha. Dr. W. T. Salmon, Duncan, delivered the address of welcome. Officers elected for 1930 were: President, Dr. A. F. Harrison, Ardmore; president-elect, Dr. A. B. Leeds, Chickasha; secretary, Dr. J. W. Nieweg, Duncan, re-elected; and the following vice-presidents from the various counties: Caddo, Dr. E. W. Rogers, Carnegie; Carter, Dr. F. W. Boadway, Ardmore; Comanche, Dr. G. S. Barber, Lawton; Cotton, Dr. G. W. Baker, Walters; Garvin, Dr. G. L. Johnson, Pauls Valley; Grady, Dr. D. S. Downey, Chickasha; Jefferson, Dr. W. N. Browning, Waurika; Love, Dr. David Autry, Marietta; Murray, Dr. W. O. Spruce, Sulphur; Stephens, Dr. D. Long, Duncan. Dr. A. J. Weedn was made president emeritus.

SOUTHEASTERN OKLAHOMA MEDICAL ASSOCIATION met at McAlester, December 11, 1929, Dr. Roy L. Cochran, president, Caddo, presiding, with Dr. John A. Haynie, secretary, Durant, piloting the meeting. Medical and surgical clinics were held at the Albert Pike Hospital and Oklahoma State Penitentiary Hospital. Luncheon was served at noon and a dinner was served in the evening at the American Legion Building. An address of welcome was delivered by Dr. Charles M. Pierce, McAlester. Response by Dr. James L. Shuler, Durant, after which Dr. Cochran delivered the president's address. Papers on scientific subjects were: "Ludwig's Angina," by Dr. J. F. Park, McAlester; "Treatment of Acute Peritonitis," Dr.

J. M. Byrum, Shawnee; "Organized Medicine," Dr. J. S. Fulton, Atoka; "Post-Graduate Medical Study," Dr. L. W. Kibler, of the Extension Department, State University, Norman; and "Treatment of Compound Fracture," Dr. F. L. Watson, McAlester.

OKLAHOMA CITY NEWS

DRS. M. SMITH, D. D. McHENRY and R. S. McCAGE attended the annual Frisco medical meeting in Tulsa recently.

DRS. C. J. FISHMAN and RAYMOND L. MURDOCK of Oklahoma City, attended the recent Clinic Day at the Tulsa Academy of Medicine.

The following Oklahoma City doctors and their wives attended the recent Southern Medical Association meeting and continued on to Cuba: Lea Riley, L. J. Starry, Ray Balyeat, E. S. Lain, Earl McBride, J. T. Martin, and A. B. Chase. Drs. L. J. Moorman and W. J. Wallace also attended the meeting.

OTTAWA COUNTY NEWS

DR. W. A. BYERS, of Washington, is doing some special work at the Bureau of Mines clinic, at Picher this month.

DR. C. A. McLELLAND, of Miami, has recently equipped his X-ray and bacteriological laboratory with serological apparatus, and has employed a full time technician.

DR. W. A. SIBLEY, formerly a practicing physician here, but for the last year in government service, is spending a few weeks with his family here. He has been recently transferred from Tennessee to Oklahoma, with headquarters at Oklahoma City.

The Sixth Annual Banquet and Get-to-Gether meeting of the Ottawa County Oklahoma Medical Society will be held at the Pierce Pennant Terminal Banquet Hall, Miami, Friday, December thirteenth. Several out of town speakers will be present, among whom are, Drs. G. Leonard Harrington, of Kansas City, Mo., W. W. Jackson, of Hot Springs, Ark., S. A. Grantham, Joplin, Mo., and R. Claude Lowdermilk, of Galena, Kansas.

DOCTOR R. ELMORE LOONEY

Dr. R. E. Looney, a pioneer physician of Oklahoma City, died December 10, 1929, in Nashville, Tennessee. He had been in ill health about a year and had gone to Nashville in an attempt to regain his health.

He was born in Goodlettsville, Tennessee, August 1, 1877. His preliminary education was obtained in the common schools; graduating from the University of Nashville, March 27, 1902.

Dr. Looney is survived by his wife and daughter.

DOCTOR ALLEN J. JETER

Custer County Medical Society at its regular session pauses in its deliberations to record its sense of loss in the passing of a great friend of organized medicine, Dr. A. J. Jeter.

No person has shown greater zeal in promoting the interests of the medical profession than did Dr. Jeter; this devotion was shown by his attendance at medical meetings and anything pertaining thereto. He served as president of this society for the year 1928 with credit.

In the passing of Dr. Jeter, the cause of the advancement of medicine has lost an ardent advocate and every doctor has lost a staunch friend.

He was a friend to the cause of right in his community and always stood for those things that go to make a place better in which to live.

He was loyal to his family, church, lodge, friends and patients, seeking their pleasure rather than his own. His ready smile, hearty handshake will linger with us.

Therefore, in heartfelt appreciation, we spread these sentiments on our records and transmit a copy of them to the State Medical Society, and to the family to whom we extend our deepest sympathy.

DR. J. T. FRIZZELL,
President.
DR. E. E. DARNELL,
Secretary.

DOCTOR JAMES HAMPTON HAYS

Dr. J. H. Hayes, prominent Enid physician, died November 27, 1929, after a brief illness. Dr. Hayes had been practicing in Enid for 14 years, having moved from Ann Arbor, Michigan, in 1915. He was one of the organizers of the Enid Clinic, serving that body as its first president.

Funeral sermon was delivered by Rev. R. C. Snodgrass, of the Central Christian Church, with services at the Enid Mausoleum, in charge of the Blue Lodge.

He is survived by his wife, a daughter and a son.

DR. WILLIAM B. MEAD

Dr. W. B. Mead, a practicing physician of Lawton, died at his home, September 12, 1929, at the age of 75. He had been in declining health for several months.

Dr. Mead was a member of Lawton lodge No. 83, A. F. & A. M., Lawton Chapter No. 444 Royal Arch Masons and the Modern Woodmen.

He is survived by his wife and two daughters.

Burial was in Highland Cemetery.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Tuberculosis in Children: A Plan for Prevention and Control by Horton Casparis, M.D. Journal American Medical Association, Vol. 93, No. 21.

The author states that the major part of our energy heretofore has been spent in the care of the disease after it has developed which is necessary and important, but it will have relatively little effect in reducing the incidence of tuberculosis for two reasons, (1) it is not practicable to hospitalize more than a small percentage of the tuberculous sick, and (2) those who are hospitalized usually are not found until there has been a spread of tubercle bacilli over a wide area and an infection often of many other individuals. It is the author's opinion that the prevention of tuberculosis requires almost as specific a procedure as does the treatment. Actual contact with the individual is necessary and prevention must begin where tuberculosis begins, and that is in children. This consists primarily in finding tuberculosis in children in the infection stage and preventing the development of active disease and this can be accomplished only through the proper use of the tuberculin test. The intracutaneous method is the most reliable.

When a positive test is obtained, the history, physical examination, and X-rays especially are used to determine the extent of involvement. Children in the infection or asymptomatic stage are cared for in such a way as to prevent their infection from developing into active disease. Tonsils are removed when indicated, dental care is given, other defects in hygiene and nutrition are corrected and inoculations against infectious diseases are carried out.

When the tuberculin test is positive, all the young brothers and sisters are tested and examined and all adult members of the family in whom the disease is suspected are examined in the medical clinic.

For the uninfected group who have no immunity and who may be exposed to an overwhelming infection, preventive measures such as avoiding contact with open tuberculosis and maintaining good physical condition should be carried out. Vaccination with BCG as proposed by Calmette and Guérin is mentioned, but the author thinks that oral administration of BCG is not practicable because a positive tuberculin test usually cannot be obtained following this method of administration. He feels that BCG used as an intracutaneous or subcutaneous vaccine offers hope of being of value as a preventive measure.

The Appearance of the Symptoms of Tuberculosis and Their Bearing on the Seeking of Medical Advice. By Linsly R. Williams, M.D. and Alice M. Hill, A. B., New York. J. A. M. A., Vol. 93: No. 8.

An effort has been made to determine the order of appearance and the relative importance of the various symptoms associated with tuberculosis.

The information given here was obtained from 1499 special histories of white patients who were

at least fifteen years of age and who were diagnosed as having pulmonary tuberculosis at the time of their admission to a sanatorium.

Of twenty-three symptoms listed, the following five were found to be the most common:

1. Cough occurred in 87 percent of the total number of patients prior to the date of admission, and was usually associated with expectoration and an acute respiratory cold.
2. Too Easily Tired. Under this class come loss of strength early morning fatigue, which followed cough and cold as a first symptom, and afternoon fatigue.
3. Loss of weight.
4. Loss of Appetite.
5. Pain in the chest and pleurisy.

"Physicians are wont to speak of the so-called five criteria of diagnosis of pulmonary tuberculosis. Two of these are concerned with symptoms: 'A history of hemoptysis of 1 drachm or more without other known cause' and 'a history of an otherwise unexplained pleurisy with effusion.' These symptoms are presumptive evidence of tuberculosis."

In an effort to determine the first cause of consultation, it was found that 97 percent of the patients first went to a doctor because they were sick, and all but 2 or 3 percent of those who did so because of one or more symptoms of tuberculosis. Seventeen patients went for consultation because they had been in contact with a tuberculous patient, nine of which were in a minimal stage, four in a moderately advanced stage, and four in a far advanced stage. Routine medical examination resulted in an earlier diagnosis in eighteen patients.

The general public is urged to consult a physician upon the manifestation of any one of the five most common symptoms stated, so that the disease may be detected in its earliest stages.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Protective Action of Convalescent Poliomyelitis Serum. Simon Flexner and Fred W. Stewart.
J. Am. Med. Assn., XCI, 383, August 11, 1923.

The use of convalescent serum in the early treatment of poliomyelitis has proven beneficial in experimental and clinical cases. The intact choroid plexus and meninges exclude immune serum from passing from the blood to the spinal fluid, but when these structures are damaged by inflammation or otherwise, the serum passes through. Experiments have shown that direct inoculation of the brain in monkeys will not produce poliomyelitis, if immune serum is given intravenously about twenty-four hours previous to inoculation.

The period of protection has not been determined, but experiments suggest the advisability of giving children exposed to an outbreak of poliomyelitis ten cubic centimeters of convalescent serum, older ones, twenty cubic centimeters, subcutaneously, and repeating in four to six weeks if conditions warrant.

Management of Gonorrheal Arthritis. J. A. Key.
Southern Med. J. XXII, 469, May, 1929.

The author reports obtaining gram negative cocci in cultures from thirteen of the last sixteen cases. He describes the pathology of these joints. The treatment should be general, to increase the resistance of the patient. Adequate nutrition, forced fluids, increased elimination, and rest relieve pain. The primary focus should be treated by a specialist in genito-urinary conditions. Gonococcal vaccines are used for about two weeks. Injection of foreign protein sometimes gives good results. Intravenous injections of mercurochrome and other antiseptics have been tried with variable results. Amidoxyl intravenously gave good results in two mild cases.

Local treatment: A plaster cast, bivalved so it can be removed and replaced, or some form of brace or traction is used. This gives rest and relief of pain and also, which is extremely important, prevents deformity. In cases which become ankylosed the joint must be kept in the position best suited for good function. Local heat, baking, and diathermy give some relief; massage should be extremely gentle, if used at all. Motion is postponed until acute symptoms subside. In severe cases in knees arthrotomy, thorough irrigation, and closure plaster cast for about ten days, followed by physiotherapy, gives good results if the cases are seen early. The Williams method of arthrotomy, drainage, active mobilization of the joint every two hours night and day, has given good results in some of the severe suppurating cases. Convalescent stage is treated by physiotherapy. Cases with fibrous ankylosis in poor position may be helped by manipulation under anaesthesia and the joint fixed in the best position for function. The range of motion in the joint can be improved by manipulation. If bony ankylosis has occurred, an arthroplasty is the operation of choice.

Local Anaesthesia in the Reduction of Fractures of the Lower Forearm. Carl O. Rice. J. A. M. A. XC, 1768, June 2, 1928.

Since 1885, local anaesthesia has been successfully used by various surgeons, in the treatment of fractures, but the method has not received popular approval. The author reports cases illustrating the types of fracture selected and has used the technique during the past year in more than fifty cases.

The fracture site is infiltrated with fifteen to sixty cubic centimeters of one percent procaine hydrochloride solution to which may be added one drop of epinephrine per dram of solution and thirty minutes allowed for anaesthesia. The solution is introduced to infiltrate the periosteal tissue and the bone ends and from pressure the superjacent structures. Manipulation was painless and no instance of infection reported.

Contraindications are compound fractures, a recent infection, and when procaine has been recently used in the same area.

The advantages are simplicity, elimination of a general anaesthetic and the opportunity to make several redressments without discomfort to the patient.

DIFFICULTIES IN DIAGNOSIS OF INSULIN COMA

Ernst Wiechmann, Cologne (Journal A. M. A., May 4, 1929), made a series of examinations with the object of ascertaining the degree of intra-ocular tension in cases of diabetic coma and hypoglycemia after insulin injection. Of eight cases of diabetic coma, he found great reduction of the intra-ocular tension in six, while in two cases the tension was normal. These observations show that reduced intra-ocular tension may be present in cases of coma other than diabetic coma. Also in cases of hypoglycemia after insulin injection, he found reduced intra-ocular tension. In eight cases it was at the lowest boundary of the normal, and only in two cases below this boundary. This fall in intra-ocular tension in hypoglycemia is not at all to be explained by alteration in the blood pressure. This has been proved by curves of blood pressure and of intra-ocular tension taken simultaneously. One explanation for the reduction of intra-ocular tension in hypoglycemia is to be found in displacements of the body fluids. After injection of toxic doses of insulin, there is a considerable rise in the amount of hemoglobin, which falls again after ingestion of food. In contradistinction to this, in hypoglycemia there is a fall in intra-ocular tension, which quickly rises after ingestion of food. It can be assumed from this that these changes are related to the sweating which is typical of hypoglycemia. The fall in tension would then be the expression of the streaming of intra-ocular fluid and of tissue fluids in general into the blood stream. That there is no consequent reduction in the hemoglobin percentage can be explained by the theory that the addition of fluid to the blood from the body tissues is counteracted by the great and speedy loss due to sweating. In all the cases of hypoglycemia which he observed, the temperature fell below 36 C. (96.5 F.). He feels that according to this a fall in temperature is not absolutely pathognomonic of hypoglycemic coma. But according to his observations in general, it happens so often as to

deserve a certain amount of consideration in the differential diagnosis between diabetic and hypoglycemia coma.

THE TRUE STORY OF ACTEROL

To get the real facts on this important subject, do not fail to look for the special color supplement in the Journal of the American Medical Association for January 18.

In the meantime, please see the Mead Johnson announcement in this issue also, entitled "The True Story of Acterol."



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NUMBER 2

ACTINOMYCOSIS*

PAUL B. CHAMPLIN, M.D.
ENID

Actinomycosis is a disease caused by the fungus actinomycosis bovis and is characterized by the formation of abundant granulation, connective tissue and multiple abscesses which discharge a characteristic exudate containing yellowish granules.

It was first demonstrated by Ballinger to be the causative agent of that disease known as lumpy jaw in cattle, in 1877. The following year, J. Isreal demonstrated the infection in man. The disease is widely distributed, having been found in every state in the union, but is more prevalent in the upper Mississippi Valley. The Mayo Clinic report 157 cases over a period of nine years.

There are several routes by which fungus may gain entrance into the body: by implantation of foreign body, through the inspired air, through an apical abscess of a tooth or through the alimentary canal. It has been suggested that it is a normal inhabitant of the oral cavity.

The fungus occurs in the tissue as rounded or spherical granules, which vary in size from .5 to 1 mm. in diameter. They are usually yellowish in color, hence the term sulphur granules. The granules when pressed between cover slip and slide, show a central mass of debris, pus and tangled filaments. Beyond this the club shaped refractive bodies and filaments may be seen to radiate outwards. The disease progresses in the tissue, forming small intercommunicating abscesses with many sinuses; large amount of granulation and connective tissue.

Diffuse inflammation is uncommon, but when the process is situated in the abdomen, large encapsulated abscesses sometimes develop. The process is usually very slow and indolent, with a large amount of

indurated tissue, which breaks down very slowly. Metastasis through the blood stream is rather uncommon. The extension is usually by continuity.

The microscopical examination shows granulation tissue with a proliferation of connective tissue in which the ray fungus may be demonstrated.

Actinomycosis attacks all portions of the body but about 50 percent of the reported cases are of the head and neck; 20 to 30 percent in the abdomen and about 15 percent in the thoracic cavity.

The symptoms of abdominal actinomycosis are: anorexia, malaise, chills and sweats and pain of variable nature, nausea and vomiting. There may be either a diarrhea or constipation. The condition cannot be recognized until the process has developed sufficiently that the hard irregular mass can be palpated through the abdominal wall, or until it has ruptured with the formation of a sinus or fistula.

The principal diagnostic sign is the large, semi-tender, lobulated tumors which are localized in one area of the abdomen from which there is a draining sinus.

The majority of cases of abdominal actinomycosis are supposed to be primary in the appendix. From here there is a gradual spread throughout the abdomen and pelvis. However, there have been cases reported of a primary actinomycosis of the uterus following an abortion and cases of actinomycosis of the kidneys.

The differential diagnosis between an early actinomycosis and a ruptured appendix or a salpingitis is almost impossible. In our series of cases the diagnosis was not made until after operation.

It is at times difficult to find the sulphur granules. They are frequently absent in the discharge of the chronic draining sinus and to find them it is necessary to curette the walls of the sinus in which they are usually present.

In one of our cases the fungus could not be demonstrated until after the sinus had healed over and an abscess had form-

*Read before Frisco Hospital Association, October 21, 1929, Tulsa, Oklahoma.

ed. Upon opening the abscess the pus was full of the granules. The granules sink to the bottom and can be found by tilting the basin from side to side.

The most important single factor in the prognosis of actinomycosis of the peritoneum is the early diagnosis.

Actinomycosis of the cervical facial type shows a mortality of only 25 percent. The abdominal type is much more serious, depending entirely upon the time the diagnosis is made. The pulmonary form is by far the most serious; only a few cases of pulmonary actinomycosis have recovered.

TREATMENT

The prophylactic treatment should be the same as all other infections; care of the mouth and teeth, thorough antisepsis in caring for all punctured wounds.

Deep X-ray has been advocated to some extent, but it is not as efficacious as the treatment with iodides, coupled with surgical drainage of the abscess.

In our three cases, the two whom we treated; one has completely recovered and the other one is very rapidly improving.

CASE REPORTS

Case No. 1.—L. B., male, age 34. Lives on farm; entered hospital September 7, 1925. Chief complaint: Indefinite pain in right iliac region. Present illness began two months ago with aching pain in side, nausea and vomiting and what he considered a bilious spell.

Examination showed some tenderness over McBurney's point, no palpable masses in abdomen. Diagnosis of appendicitis was made and operation performed on September 7th. The appendix was found badly diseased, one inch long and the lumen almost obliterated. There was a chronic inflammatory condition in the wall of the caecum about two and a half inches in diameter by one-quarter inch thick.

The post-operative course was stormy; wound broke open on the 12th day and discharged considerable pus.

Patient returned two months later, when a mass was palpable in the abdomen; gave history of his wound having broken open two or three times since he left hospital.

Second operation showed indurated tumor size of a goose egg around caecum. A piece was taken for laboratory examin-

ation and due to the round cell infiltration and giant cells, a diagnosis of tuberculosis was made.

Patient returned about six weeks following the operation, at which time the whole pelvis was filled with an inflammatory mass. There was a draining sinus. We gave him rather a poor prognosis; he sought other medical advice; was operated the third time in March, 1926, and died following the operation.

Diagnosis of actinomycosis of the peritoneum was made at the time of the third operation.

Case No. 2.—C. S., female, age 15; lives on farm; entered hospital May 12, 1928. Chief complaint: Loss of appetite, headache, pain in side. Present illness: one year ago had a spell that resembled typhoid but ran a much shorter course.

Illness recurred 4 weeks ago; lost her appetite, complained of headache, pain in left side in iliac region, which radiated to midline, soreness confined to right side; temperature running to 104.5. Mother states her present illness is very similar to the illness she had one year ago.

Examination showed a large inflammatory mass in both adnexa. Diagnosis of chronic salpingo-oophoritis was made; operation May 12, 1928, revealed a large abscess involving the left ovary and both tubes. A second abscess in the broad ligament on the left side which had eroded into the fundus of the uterus, was found.

Appendix was buried in adhesions; both tubes and appendix were removed; the cigarette drain in the pelvis.

Microscopical examination showed the tubes to be chronically inflamed; round cell infiltration; diagnosis: chronic salpingitis.

Post-operative course was stormy; wound discharged. Patient returned two months later at which time she gave a history that wound had healed and broken open several times. Examination showed a large inflammatory tumor which could be palpated and extended up to the iliac crest.

Examination of the discharge showed no granules, but following a curettement of the sinus tract, the granules were found. Patient put on iodide therapy, improved very rapidly. Returned November 1st, at which time no mass could be palpated in the abdomen; patient healthy and apparently well.

Case No. 3.—L. O. Female, age 45, lives on farm; housewife. Chief complaint: Pain in left iliac region. Present illness: Began four weeks ago with sudden onset of high fever which continued for about two weeks; then stated that she passed considerable pus through her bowel, at which time her pain was relieved.

Pain and fever recurred three days ago and was brought into hospital at which time examination showed a large inflammatory condition in the pelvis.

Diagnosis of salpingitis was made; operation on February 2, 1929. Abscess found in each iliac region, involving both tubes and ovaries; appendix bound down into the mass; some erosion of the ileum which had been in contact with the appendix.

Microscopical diagnosis was pyosalpinx. Post-operative course was stormy. Left hospital in three weeks; returned for examination July 20th with history that wound had broken open and drained, then healed several times since dismissal from the hospital.

Vaginal examination showed a large indurated mass anterior to the uterus. The sinus at that time was healed over. Upon opening the sinus, the pus was examined and sulphur granules found; when examined microscopically proved to be the fungus actinomycosis.

Patient placed on iodide therapy; has returned for examination every two weeks. Last examination showed indurated mass in the pelvis about the size of an egg. General condition is much improved.

Case No. 4.—F. M. F. Male, age 43. Chief complaint: Draining sinus in appendiceal scar. Entered hospital December 27, 1929. Personal History: Always well; no serious illness; 3 healthy children living; one child stillborn.

Present illness: In 1922 had an attack of appendicitis and was in bed 45 days with ice bag on his side. Apparently completely recovered. Had some trouble with his side in 1928, which lasted only two days. Last attack began July 4, 1929. Went to hospital in Oklahoma City on July 16th, was kept in bed two weeks and then operated for ruptured appendix. Drainage was placed in the wound. Wound has continued to drain intermittently since operation. Patient complained of pain only at the time the wound was healed over.

Physical examination shows a well developed, well nourished man, age 43, conscious, rational, does not look sick. Eyes, ears, nose and throat negative. Heart sounds clear and strong, no murmurs. Breath sounds clear throughout, no rales. Abdomen: there is a draining sinus in old scar in right lower quadrant; some resistance to palpation over the whole right side and a nodular mass could be indistinctly palpated beneath the operative scar. Exploration of sinus showed it to be about four inches deep. Genitalia negative. Extremities normal. Pus was examined and several sulphur granules found. These, upon microscopical examination, proved to be the ray fungus of actinomycosis. Patient was seen in consultation and recommendation made for treatment but at such a recent date that no change in his general condition could be expected at the present time.

CONCLUSIONS

It has often been said that in diagnosis the errors of omission far outnumber those of commission. The function of this paper is to bring to mind the diagnosis of actinomycosis and emphasize that it is not as rare as it is generally supposed to be.

We have had four cases in the last four years and actinomycosis should be suspected in every case where there is a fistula of the abdomen draining from an irregular indurated mass.

PROSTATIC ABSCESS

O. R. GREGG, M.D.
ENID

Abscess of the prostate is frequently undiagnosed and untreated. The result of this neglect is repeated suppurations with destruction of the gland, masses of cicatricial tissue, fistulas of various kinds, and even death. Chronic infection in this organ gives the same untoward results as focal infections in any other part of the body.

While more frequent in mid life, the author has seen two cases in patients passed seventy-five years of age and two in patients aged sixty-seven and sixty-nine respectively. Meredith Campbell, recently reported a case of a child twenty-eight months of age with a G. C. prostatic abscess, and Szenkier, a German author, re-

ports a case complicating typhoid in a two and a half year old child.

Neisserian infection is responsible for the larger percentage of these abscesses, yet many cases are due to a metastasis from infections in other portions of the body. Kretschmer has reported cases due to abscess of the finger, one due to tonsillitis, and one following suppurative appendicitis. Bandler, in discussing Peterson's paper at the A. M. A. in 1928, reported several cases following influenza. Herman and Carp are of the opinion that the non-gonorrheal abscesses are more serious and more often fatal than are those of the venereal type.

The injudicious use of sounds, massage, and posterior injections are the direct cause of many prostatic abscesses. The propitious time to begin massage and sounds is a question that many have not solved. The history of riding a horse, farm implements, or in a rough car is not uncommon.

The symptoms of prostatic abscess are very much the same as those of a circumscribed infection in any part of the body, i. e., chill, followed by fever, rapid pulse, increase in the leucocyte count, symptoms of toxemia with general malaise, and in addition we have the pain in prostatic region, retention of urine, the enlargement and extreme tenderness on rectal examination, and possible fluctuation. The above is a beautiful diagnostic picture that no one could miss, but unfortunately many of the symptoms are more frequently missing than present. Commonly, chills and fever are wanting. Many times the acute pain is nil, and I have opened more abscesses without fluctuation than with. To me, the dependable symptoms, calling for incision are: first, dull aching in the perineum; second, enlarged, tender prostate revealed by rectal examination; third, increase in the leucocyte count. Upon the above I have based many diagnoses and I have yet to incise without finding pus.

Now as to treatment. Stephenson has recommended and was O. K'd by Keyes, that a small sound be passed into the urethra; the tip plunged in the lateral lobe on one side, then slightly withdrawn and plunged into the other. I will confess, that I have used this method on three or four occasions and "got away with it," when the patient refused a perineal operation, and hospitalization. This procedure is a makeshift, uncertain, unsurgical, and capable of doing more damage than good.

Barringer, in 1922, aspirated through a large calibre needle in case of G. C. infection and carcinoma only, and had favorable results in fifteen reported cases. W. G. Shultz has used the same method in G. C. abscesses, reporting good results in several cases, but adds the irrigation of the cavity with Dakin's solution, to the technique.

It is a well known fact, that many of the small abscesses that lie adjacent to the urethra will rupture spontaneously into the canal. I am inclined to think that because of these spontaneous emptyings, that many of us are prone to take the watchful waiting stand in our suppurations located more deeply within the substance of the organ. It is this delay that keeps the man from his work week after week, and leaves a gland with suppurating pockets.

To me, the method of choice is the same as would be used in incising an abscess in the throat, on the leg or any other part of the body, i. e., simple incision and drainage. Formerly I performed quite an operation incising the skin, separating, and retracting the muscles, thus baring the prostatic lobes as I do for a prostatectomy, then freely incising. I now use the much simpler procedure, reported by Livermore, of incising the skin down the median line, and with sound in urethra, and finger in the rectum as a guide, penetrate the muscles with a pointed hemostat or scissors, after which I open the blades thus enlarging my canal. I insert a small drainage tube and the operation is more quickly over with than it takes to tell it, and the pus always comes. The pain is relieved at once. The patient leaves the hospital on an average, the second or third day, and many times goes to work within the week. Drainage continues for a few days, but I have never had any trouble with sinuses or fistulas following. My results have been ideal.

Case No. 1.—Age 29, male, married, traveling salesman. Had a G. C. infection twelve or fourteen years previous at which time he was treated by a physician and has had no discharge until the present trouble. The patient had some abscessed teeth. He noticed a heavy dull feeling in the perineum when riding in his car, gradually becoming worse, and at the end of the second week a thin, pussy discharge appeared. He was treated by the local physician, who insisted that the pa-

tient had an acute Neisserian infection, although he vehemently denied same. Repeated smears taken from his wife were at all times found to be negative for diplococcus. Repeated smears from the patient's urethra showed pus and mixed bacteria but no diplococcus. Wassermann, from self and wife negative. The patient because of the pain in riding was forced to give up his job. The physician continued to treat for a specific urethritis for a period of nine weeks, when the patient was brought to Enid, where his parents resided. The physician to whom he went questioned the diagnosis of G. C. infection thinking of a T. B. condition, but was unable to find anything by rectal examination that would suggest an abscess. The patient was turned over to me after eleven weeks of invalidism. He complained of pain in perineum. On rectal examination the prostate was found to be tender, enlarged, but not extremely painful. I have seen many cases of hypertrophy that caused greater pain on examination. Both lobes were found to be flat and at no place was I able to find any sign of fluctuation. The doctor who preceded me had made repeated softness or fluctuation. Repeated examinations of urine and of the discharge was made for T. B. but found to be negative. The W. B. C. was 13,000. There was a dull aching in the perineum, enlargement and slight tenderness on rectal examination. I placed the patient in the hospital, made my customary incisions and when I separated the blades of the forceps evacuated about two tablespoonsful of pus. Convalescence began from the time of drainage of the abscess. The second day I had two abscessed teeth removed. The fourth day he was able to leave the hospital and was back on his old job in a week, although there was some discharge from the perineal wound, which lasted about a week longer.

Case No. 2—Age 28, single, salesman, G. C. infection three years ago, treated by a physician, and thought to be cured. A month ago could not pass urine and noticed a soreness and heaviness in the perineal region. He was catheterized, and treated with massage and sounds by a general physician. When the man came to me he had not worked for forty days. Urinated eight to ten times at night with much pain,

particularly on finishing. Prostate very large and bare, and painful. W. B. C. 11,600 and R. B. C. 3,960,000. Patient was operated by low perineal incision in skin, and blunt Mayo scissors inserted through muscles, and blades separated. About a tablespoonful of pus drained with clots of blood. Small rubber drainage tube inserted. The day following was little drainage, and patient was permitted to leave the hospital. The third day feeling good, drainage removed, and permitted to go to town. The seventh day he returned to work, but wearing a perineal pad. The tenth day a very few drops of discharge from the wound which shows an occasional pus cell containing a very few mixed bacteria. The wound closed the next day or two and treatment was entirely discontinued.

SUMMARY

1st. Prostatic abscess is a condition frequently overlooked and untreated.

2nd. While more prevalent in middle life, it occurs in young children and in the aged.

3rd. Many cases are due to metastasis, but are excited by trauma.

4. The symptoms of an aching in the perineal region, enlargement and tenderness of the gland, with a high leucocyte count justifies perineal incision.

5th. The simplest perineal incision, is the operation of choice.

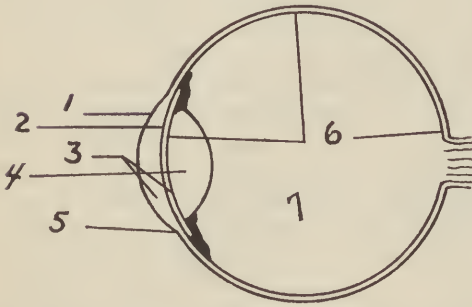
6th. With incision pain ceases and invalidism that has lasted for months will be terminated within a week or ten days.

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INJURIES TO THE EYE

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In the presentation of such common occurrences to the most important organ of sense we possess we wish first of all to call attention to some of the gross anatomy of the eye.

Injuries involving the anterior and posterior chamber, their limiting walls, and contents, that do not injure the ciliary body, usually result in recovery with a useful eye. It may cause a cataract, but as this can be operated, I consider this accident no reason to alter the above statement.

After considering the anatomy of the eye we wish to include all mechanical injuries in the following three classes: First, the superficial; second, penetrating; third, contusions. Of the superficial injuries the most frequently met are first, foreign bodies on or in the conjunctiva of the lids and ball and cornea; secondly, burns.

Every foreign body in the cornea has potential seriousness as to complete recovery of the eye. Hence it is always important to obtain history as to how long standing and note carefully the extent of injury and any resulting irritation caused therefrom.

Many serious complications may result from delayed removal with no attention given the existing iritis. Such injuries often result in synechia that can never be broken, impaired vision, and glaucoma, all of which could and should have been avoided by proper attention and treatment. Never remove a foreign body with a swab or by brushing. Use a spud or some sharp pointed instrument and lift it out of its bed. If possible without too much injury always remove stain caused by iron oxidation. This in many cases causes no trouble but in many healing will be delayed until it sloughs or is removed.

One should ever keep in mind that one of the most painful injuries is an abrasion or laceration of the corneal surface from rubbing with foreign body in eye, or from a scratch of a hard object that has grazed the corneal surface. These must be stained to be seen. The pain accompanying such injuries will require holocain or some similar drug, for from 24 to 72 hours. After the removal of a foreign body the treatment consists of the instillation of some mild antiseptic which in a majority of cases is sufficient.

In all cases where there is an iritis atropin should be instilled to produce dilatation of the pupil and relieve pain.

No. 2. Burns of the cornea and lids, usually caused by acids or lye, have by the time the patient is seen by the ophthalmologist resulted in all the damage they are due to produce. If seen immediately following the accident, they should be freely washed with water or better a weak solution of alkali or acid, determined by causative agent. Indelible lead pencils are usually a basic dye but some are acid and it is impossible to tell which one has caused injury, consequently to wash thoroughly with water is probably the best treatment.

The after treatment of a burn of the eye is the same as elsewhere. It resolves itself into the relief of pain and irrigating with cleansing mild antiseptic solution.

In dealing with the second division, penetrating wounds, we are confronted in every case with one of serious complicating probabilities. If the injury occurs to the anterior part of the eye, anterior to the ciliary body, is seen early and is removed with little trauma, in case it is in the eye, and no infection occurs, results will be gratifying. If, however, the punctured wound was caused by something that has carried with it infection, as a stick or the beak of a bird, the results even though carried out with strictest antiseptis and asepsis will be very disappointing.

The treatment consists of removing the foreign body if within eye, taking care of the iris, excising that portion protruding, suturing if deemed best at limbus and covering cut in cornea with conjunctival flap. In cases where the perforation has injured the ciliary body, choroid or vitreous, any or all of these structures, the chances of recovery of a useful eye probably fall below 50 percent, as these structures, are very intolerant to any manipulation. If we successfully remove in these

cases, whatever the offending body has been our prognosis should be very guarded. Lacerated wounds heal less promptly in the eye than elsewhere. In caring for these injuries good judgment and hearty cooperation of the patient is a very necessary adjunct to the treatment.

On the third division—contusions—rest the heavy responsibility of many blind eyes. A contusion may cause hemorrhage from iris, ciliary body, choroid or retina. This may further result in retinal detachment, hemorrhage into the vitreous, into the nerve head, with resulting complete, temporary, or partial blindness, according to location and severity. Dilatation of pupil points to injury of sphincter, trembling iris to luxated lens. In many of these cases it is impossible to make a diagnosis of the magnitude of the injury for a few days, owing to the presence of blood. Use no atropin in contusions of the eye unless iritis demands it. Use cold and give salicylates and instill dionin.

CONCLUSIONS

1. Every eye injury, no matter into which class it falls should be watched daily for any sign of irritation until well.

2. All penetrating wounds should be studied as rapidly as they will permit. When injury is limited to lids, cornea, iris and lens, one in most cases may expect good results. If injury has involved ciliary body choroid and vitreous, the prognosis is not better than 50 percent under best care.

3. Injuries should be cared for here immediately as in any other part of the body.

4. After acute stage always take field to determine extent of lesion and note carefully details of fundus.

5. Take tension of eye, as lowered tension is present in penetrating wounds.

ONE REASON WHY ENTEROSTOMY MAY NOT FUNCTION

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This is not meant to be an article on ileus, but an observation in regard to one phase of its treatment which I happened to observe in one case, and which I believe, may be the reason for failure to obtain satisfactory results in some cases.

Ileus is a quite common and fatal condition, if not recognized early and relieved

promptly. Cases outside the hospital can rarely be gotten in early, because, until attempts have been made repeatedly to move the bowels, the patient will not move. Obstruction occurs quite frequently in the hospital. Post-operative ileus is a frequent complication following lower abdominal infections, such as salpingitis and gangrenous appendicitis. In inspecting the massive adhesions which sometimes follow these infections, it is strange that it does not occur oftener. These cases are not operated for some hours at least, because one naturally hopes that the obstruction is partial and can be relieved, and it is not usually possible to be entirely sure of the condition until after some hours. So the ordinary case of intestinal obstruction is usually quite distended before it comes to the operating room. This distension makes abdominal exploration difficult, even in the early cases.

The cases of longer standing do not stand an anesthetic or intra-abdominal manipulation, well. Then too, if post-operative and following an infection, relief of the obstruction at its source is quite often not practical, not only on account of the condition of the patient, but because of the danger of turning loose a walled off and localized infection. So I believe the usual procedure, and much the safest one is to do an enterostomy under local anesthesia and relieve the immediate condition, and re-operate later, if necessary. Most of these obstructions are kinks and relieve themselves promptly after the enterostomy begins to function, and if the enterostomy is kept open for about three weeks, usually nothing further is necessary. If the condition of the patient becomes rapidly grave, some strangulation of the intestine can be suspected, and if on opening the abdomen, the fluid is bloody, we can be quite certain that a loop of bowel is strangulated. If so, of course it must be sought for and the strangulation relieved, and if the intestine is gangrenous, it must be removed, or at least delivered outside of the peritoneal cavity. However, in most instances, the condition is a kink, and enterostomy is both easier and safer to do, and is all that is necessary.

Now, usually, if the obstruction is not of too long standing, the enterostomy drains freely, the vomiting, colic, etc., promptly subside, and after two, three or four days, the bowels move. However, occasionally, although the enterostomy drains immediately after it is made, and

appears to be satisfactory, the next day it drains poorly and the patient does not do well, and in these cases, a second enterostomy, higher up in the intestine becomes necessary. Some months ago I had such a case following gangrenous appendicitis. The usual procedure was followed. A catheter was introduced into the ileum about its middle, the point of the catheter extending down the intestine and the catheter buried in the intestinal wall. It is usually recommended that the catheter be placed in the long axis of the bowel, with the catheter protruding into the bowel in the direction of the normal current, and the valve made in the bowel above, so as to produce a valve which will close with peristalsis, after withdrawing the catheter. In this case, the drainage, immediately following the operation was quite free, and symptoms were immediately relieved, but during the night there was very little drainage, and the next morning, practically none, and the child had again developed all the typical symptoms of ileus.

The wound was re-opened and the loop of bowel into which the catheter had been sutured, was delivered. Everything appeared all right. The catheter was not occluded, but still it did not drain. The intestine above the enterostomy was distended. A clamp was put on the distended intestine about a foot above the enterostomy, and pressure applied to the bowel below the clamp. Nothing could be forced by. There was a complete obstruction at the site of the enterostomy. Only a small part of the caliber of the bowel had been included in the suture, and on examination I could see no reason whatever, for the obstruction. Apparently following the placing of the catheter in the bowel and the suturing around the catheter, there was a slight tendency of the bowel to kink. This, together with the edema following the procedure, had resulted in a water and airtight valve. I left the catheter in place and made a second enterostomy, somewhat higher in the bowel and this time introduced the catheter into the bowel with the point extending upwards, instead of downwards. Drainage was immediately free and symptoms were promptly relieved. A few days later, the first catheter began to drain, due, I suppose, to the subsidence of the edema in the bowel wall, and shortly after this, her bowels moved naturally.

I have wondered since this time if this is not the explanation of the occasional

failure of an enterostomy done in this manner to function. Since that time, I have introduced a catheter with the point extending upward, instead of downward in the bowel. Drainage in each case has been satisfactory, and there appears to be no difference in the amount of leakage, or the time of closure, after withdrawal of the catheter.

ARTHRITIS DEFORMANS

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Arthritis deformans, chronic arthritis and rheumatoid arthritis are used by different authorities more or less to describe the same conditions and may be considered synonymous for the purposes of this paper. By the rheumatoid or atrophic form is meant, not only atrophy of bone, but also of all joint and periarticular structures, atrophy of the skin, and particularly atrophy of certain muscle groups anatomically related to the joint concerned.

Starting with acute inflammation of the joints, atrophy of the muscles appears with great rapidity; it may even appear before the joint inflammation. The distribution of the lesions is symmetrical; the course is chronic and progressive, interrupted by acute exacerbations, also symmetrical. In the late stages there is atrophy and contracture. Ankylosis, which may be extreme, is not caused by bony change, but by atrophy, contracture, fibrosis and dislocation. An almost total wastage of certain muscle groups is seen in the course of a few weeks in rheumatoid arthritis.

Chronic joint diseases have always offered difficulties from the standpoint of etiology and experimental study, as well as from the viewpoint of treatment. There are always cases of this character in the practice of all physicians and in the wards of any hospital; particularly in those of the general and charitable class. They represent, in most instances, the result of previous treatment or lack of treatment. Possibly the physician is discouraged as his results have been unsatisfactory, both to himself and to the patient, and the patient is passed along, similar to a tubercular case until he drifts into the hands of the charlatan.

The investigations of Billings and others, confirm the present view of many physi-

cians, that arthritis is an infectious disease, generally caused by strains of streptococci, which are usually non-hemolytic and of low virulence, and occasionally by staphylococci and by non-pyogenic strains of gonococci or other bacteria. The bacteria reach the joints through the blood stream, lodge in the small vessels of the periarticular tissues, the terminal vessels of the serosa of the joints, without forming a purulent exudate and may enter the nutrient artery supplying the epiphysis of the bones.

The result of the bacteria in the blood of the host is dependent upon the virulence of the same, and on the number of bacteria in the blood stream. The resistance of the host may be diminished by exhaustion, debility from overwork, starvation, infectious diseases, such as pneumonia, typhoid fever, erysipelas and puerperal infection. The severity of the joint infection depends upon the virulence of the bacteria, and the number which reach the tissues of the joint. The deformity is generally due to bony overgrowth, tucking and contracture of the capsule and tendons, overaction of the flexor muscles, hyperextension, muscular contraction, and even fixation, which is almost immobilizing to the joint. All these are produced by infection.

The progressive character of the disease is explained by the persistence of the etiologic foci, through failure of eradication or failure to locate or to apply treatment to correct tissue defects. Jones and Jones emphasize the importance of fibrositis as the underlying and characteristic phenomenon of this disease, and that it is fibrous tissue which is primarily concerned in these conditions, whether in the muscle, nerve, cartilage or bone.

In recent years great emphasis has been placed upon the importance of focal infections, such as pyorrhea, teeth, alveolar abscesses, septic tonsils, infection of the paranasal sinuses, and infections connected with the alimentary and genito-urinary tracts, gall bladder and the prostate. Some authors believe that infection is not the primary fault. This is to be found in a condition of the mucous membrane, which lowers its resistance to invasion by germs and so gives rise to a sub-infection. Everyone is familiar with patients who from their earliest years appear to have an increased susceptibility to infection of their mucous membranes, who have what may be termed a "catarrhal" or "mucous dia-

thesis." But in most cases it is probably acquired, and the interesting suggestion has been made that it is due to a deficiency of vitamins.

There is also a disturbance of the endocrine secretions. During the active phase of the disease there is usually evidence of hyperthyroidism, which causes a lowered sugar tolerance, and lowered sugar tolerance not only aids infection, but is also caused by infections, shock, anxiety and worry, so that a vicious circle is set up. Many patients have hypochlorhydria, and this increases the possibility of a gross infection of the small intestine, especially in the presence of swallowed septic material.

The deforming process is slow and preventive treatment in this respect should not be delayed. The deformities are the result of muscular spasm, faulty posture, and eventually, anatomical changes in and around the joints. As a general rule, muscular spasm produces flexional deformity because the flexor muscles are stronger than the extensors, and also because slight flexion is the most capacious and most comfortable position for most joints. Spasm of the muscles cannot persist for years, but the deformity of the joint persists long after the pain that first set up the muscular shortening has passed. The practical point is that the shortening of the muscles can always be overcome by gradual stretching with weights or splints, and is never enough to compel operative interference, though this may sometimes be expedient for economic reasons. Ulceration of the articular cartilages always precedes ulcerations of the underlying bone and begins where pressure is greatest.

When the hands are the seat of the deforming process, there is a tendency of the fingers to be deflected externally, i.e., towards the radius, and to overlap one another, the thumb remaining free. They may improve for a while, then undergo exacerbations, with new periods of remission, but each access seems to augment their size, and the discomfort they cause, finally leading to the formation of hard projections (Heberden's Nodes) on the phalanges which usually result in marked distortion of the fingers.

The heart muscle taking part in the morbid process, sometimes produces cardiac complications. The nervous supply of the areas involved being itself the seat of morbid changes, parenthesis and eviden-

ces of impaired nutrition of the skin and nails may appear. The vertebrae are often affected, causing a well established form of arthritis known as Spondylitis Deformans. The gastro-intestinal canal may also be disturbed, due mainly to involvement of the gastro-intestinal musculature in the general myositis. The dominant trend is a progressive localized autolysis of the synovial membranes, cartilages, and bony tissues of the joints with the formation in and around them of osseous proliferative masses and adhesions which deform them and inhibit more or less their functions.

The clinical picture depends on the point and degree of advancement of the disease, but when this is well established, the patient is more or less bed-ridden, knees, shoulders and ankles have limited motion, the knees are enlarged, the hands show irregular swelling of the knuckles and the interphalangeal joints, the wrists are almost ankylosed, and there is pain on motion, and even at rest.

Significant advances have been made in the treatment of arthritis and the relegation of patients suffering from this disease to the class of "hopeless chronics" has been practiced too often by many conscientious, yet less painstaking physicians.

TREATMENT

In the management of this disease each case is an individual study.

1. Steps to remove or combat the focus of infection.

(a) Teeth. Too much emphasis cannot be placed upon the importance of having cases studied by the dentist and roentgenologist in the most thorough manner, for foci in the mouth may exist, which appear trifling on their own account and yet may be productive of serious consequences.

(b) Tonsils should be subjected to more than mere inspection as relatively trifling crypts may harbor necrotic material, which acts as culture media for bacteria.

(c) Ears should be examined by one trained in this line of work.

(d) Accessory-sinuses should be studied by inspection and by the X-ray.

(e) Appendicitis, bowel disorders and gall-bladder diseases should always be eliminated as possibilities.

(f) Sir Arbuthnot Lane suggested the origin of arthritis to be in the anatomic

aberrations of the bowel, and Smith has reported benefit following ileocolostomy and even colectomy. This latter treatment is of such severity as to make its general application extremely limited. Practical therapy may be directed toward assisting the function of the bowel by the use of petroleum, cascara, agar-agar, (when sprinkled over food or given in the form of Mansfield wafers, frequently stimulates peristalsis, by its property of absorbing water and thereby increasing intestinal content and bulk). Abdominal support is useful where there is weakness in the abdominal wall and ptosis of the viscera.

(g) The genito-urinary tract may conceal a boggy prostate gland, a low grade infection in the seminal vesicles; or in women, in the purulent discharge from the cervix or an involved Bartholin gland. All of these, if present, should receive vigorous treatment.

(h) Buckley of London says that the origin of infection in cases of chronic infectious arthritis will be found in the mouth, throat or naso-pharynx in 95 percent of cases.

2. *Dietetic.* Fletcher has pointed out that the relationship of sugar tolerance to the effect of reduction in diet showed that the response to reduction in diet is proportionate to the reduction of sugar tolerance. It is thought that in a case with low tolerance, one may expect to offer good prospects for improvement. Carbohydrates and proteins should be administered with the patient's well-being as a guide, adhering to bread, water, sugar, milk, roast meats, fish, rice and potatoes. The injurious matter which reaches the tissues is most frequently of carbohydrate or protein origin.

3. *Vaccines and foreign proteins* have had much exploitation in recent years in the treatment of the various arthritides. Vaccines act in these low grade infections by stimulating the system to an increased defensive, which overcomes or checks, in turn, the development of the organisms. Obviously, it should follow that the exhibition of these products should not be manifested in acute and overwhelming infections. The determining of dosage should be done by producing a reaction, characterized by fever, chilliness, malaise, headache, and a possible exacerbation of all symptoms followed by relief. The reaction should be marked, but not so great, as to embarrass the condition of the pa-

tient. Theoretically, an autogenous vaccine is one of choice. However, on account of the difficulty of determining the causative organism in this disease in many instances, and because of the time consumed while awaiting its isolation, a polyvalent stock vaccine may be employed. Buckley has reported some favorable results following the use of stock vaccines, especially when accompanied by daily doses of thyroid gland extract. There is no uniform dosage recommended, but the initial dose of 500,000,000 killed organisms should be given until a reaction is secured. The interval between administrations is generally one week. If benefit is not apparent in a reasonable time the vaccines should be abandoned.

Foreign proteins in various forms have been given with some success as reported by Miller and Lusk, and by Joseph Eidlesberg. Solutions of proteose and typhoid vaccines were used by the former, and milk by the latter. Arthritides of various types have been treated by using foreign proteins including horse serum, antimeni-gococcic serum, typhoid vaccine, bacterial filtrate, phylacogens and milk.

4. *Glandular Therapy.* Volumes have been written upon the influence of the endocrine glands upon metabolism and arthritis. Thyroid extract has been used as reported by Buckley, Pemberton and Lamarque. However, the work of Cecil, Barr, DuBois, Soderstrom and Mageil does not indicate that arthritis deformans is a disease of metabolism and that it is not accomplished by an increase in the metabolic rate.

5. *Medication.* Iron, strychnine, and tonic drugs are frequently used with some benefit to maintain health at a point where discomfort is reduced materially. Arsenic in the form of Fowler's solution 1 to 2 minims t.i.d.p.c. or 1-2 of a grain of cacodylate of soda, frequently improves anemic conditions which accompany this disease. Colchicum and lithium are little used and of little avail. The salicylates, aspirin, atophan, cinchophen and pyramidon are useful but of limited value. They relieve pain very materially, but continued over a long period are apt to interfere seriously with digestion. Iodine and iodides have been used in arthritis with indifferent success for many centuries. However, sodium iodide, as pointed out by Osborne is preferable to the other preparations. Its usefulness has been reported by Elmore and others.

6. *Elimination.* Free elimination is indispensable to assist in ridding the body of toxins. Free action of the bowels should be maintained without vigorous purgation and depletion. Water should be taken freely. Free diaphoresis by the use of baths, electric pads, cabinets and therapeutic lamps, is of much benefit, if persistently employed, but should not be used to the point of exhaustion.

7. *Local Therapy.* (a) Heat applied as above mentioned gives great relief, if not used to the point of exhausting perspiration. (b) *Medicinal Applications.* Counter-irritants give temporary and subjective relief and may be applied with benefit. Methyl-salicylate ointment, iodine ointment, guaiacol ointment, iodine petrogen, mesotan, and any counter irritant of the many of our pharmacopea may be used. One should always avoid injury to the skin by too frequent or too vigorous application.

(c) *Massage* is invaluable in restoring atrophic muscles, if judiciously applied, by the doctor as well as by the nurse. The movement of a joint is as directly dependent upon the ability of a muscle to act, as it is upon a perfectly functioning articular structure. Massage takes the place of exercise, in a sense, and combined with whatever passive and active motion may be instituted, improves the muscular and systematic metabolism. Many ingenious mechanical devices have been manufactured by physicians interested in these diseases and their more progressive treatment, with which to accomplish and promote passive motion. We deplore, however, the forcible breaking up of an ankylosed joint, under anesthesia.

Rest. This element of treatment is to be employed following periods of more or less activity and if not carried to the point of adding atrophy to the muscles, with more limitation of motion, it is highly beneficial. The supervision of motion the application of casts, splints, of rest and general management in conjunction with the counsel of a skilled orthopedist, is in many instances, a very desirable and helpful combination.

Climate. Patients suffering from chronic infectious arthritis invariably do better in a warm dry temperature than in localities where there are abrupt changes and where there is much heat, cold and humidity.

Electricity is employed in this disease

with considerably good effect. It is claimed by those familiar with this form of therapy, that the various currents available, produce certain beneficial results. Thermic effects of high frequency currents are probably the most marked of the sources of electrical energy. The physiological effect of this heat upon the tissues, is derived from the increase in blood supply. This hyperemia has a tendency to persist with its beneficial effects for a long time. The mechanical effect upon cell structure is due to the thermic effect phenomena and the passage to and fro of active electrons, through the tissues. In these joint involvements, the circulation is thereby improved, metabolism and promotion of elimination of toxic poisons which may have caused or aggravated the condition, is accomplished. The growth of germs is restricted and infiltration is removed by the more active metabolism in the joint structures, by the establishment of active circulation.

Radium applied, and matter activated with radium added to water has marked effects as observed by Gottlieb at the large radium mine at Joachimthal among miners. William Armstrong of Buxton, summarizes the effects as: (1) increased diuresis; (2) increased exhalation of carbonic acid gases; (3) lowered blood pressure; (4) decreased viscosity of the blood; (5) increased activity of peptonizing ferments; (6) autolysis; (7) inhibition of pains of joints; (8) solvent action on gouty deposits.

At The Mayo Clinic the patients are treated to weekly lectures, outlining the fundamentals in the structure of the joints, the physiology of joint mobility, the nature of focal infection and the relation it bears, removed or unremoved, to their systemic infection, the role of baking, massage and exercise. They do not instruct patients to hope for a cure, but they do instruct them to consider their ailment as a tuberculosis patient considers his—one which demands common sense living and an attempt to restore all bodily functions to normal or to keep them as nearly normal as possible. Special diets for correction of constipation, overweight, or undernourishment, orthopedic and medical supervision and radical removal of foci are urged. Dr. Hench claims that this gives peace of mind while admitting that ease of pain is impossible.

AURICULAR FIBRILLATION

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ENID

Perhaps the same cannot be said of auricular fibrillation, concerning its increased frequency, as has often been said of the increase in the frequency of cancer. It is the opinion of most scholars of medicine, that cancer is not on the increase to a marked degree, but that the average physician is finding it sooner by sharpening his sense of perception. Most men, however, are of the opinion that there is an actual increase in the number of heart diseases, and especially that type of functional heart disease known as auricular fibrillation.

Undoubtedly one of the most fascinating phases of medical literature which anyone can pursue, is that most human aspect which is displayed by our greater investigators. It is the rule, rather than the exception, that the greater contributions are made by men who can appreciate the more practical side of pathological physiology. In other words, that small group of practitioners who are able to profit by their experience. It is true beyond a question, that one finds, upon reviewing medical literature, that a vast majority of the greater contributions have come from men who possess that rare and valuable power of clear practical reasoning, and are not prone to be ultra-scientific; which in the end is the least scientific. And so was one of our most beloved forefathers of medicine, Sir James Mackenzie. This most colorful individual went about his practice and made practical observations, which were held to be absurd by the so-called giants of medicine. These experiences, have however, shown themselves to be of inestimable value to the human race. Doctor Mackenzie was the first to clinically observe the conditions of irregular irregularity of the heart-beat, and recognize its potentialities. He differentiated regular irregularity from irregular irregularity, and was able to show clinically that the former was of little significance from a standpoint of severity and that the latter was of great significance. He was able, by his ingenious devices and his keen sense of detection, to observe that the auricles reached a state of circus movements rather than their usual regular contractions. By virtue of this condition the ventricular muscle was

unable to receive regular and standard impulses over the atrio-ventricular bundle, which condition gave rise to an irregular contraction of the ventricles. He first named this condition auricular paralysis, but later changed it to the "Auricular Fibrillation." He recognized it to be a disease coming under the classification of pathological physiology.

Under normal conditions the heart-beat receives its primary stimulus from a small mass of highly specialized tissue, which is situated in the right auricle at the junction of this chamber with the superior vena cava. This node is called the "pace maker" of the heart and from its impulses the rate and rhythm of the heart are directed. The impulse given by the sinus node is followed by a wave of muscular contraction which spreads throughout the right and left auricles. It is then conducted to the ventricles over the atrio-ventricular bundle. This structure is composed of both muscular and nervous tissue. It begins at the node of Tawara, which is situated low down, and to the right of the inter-auricular septum. It continues downward to the inter-ventricular septum where it divides into right and left branches, and they in turn subdivide into end branches which terminate into the fibers of Purkinje. Thus, are the normal heart rate and rhythm made possible. The sinus node issues the impulse and is, therefore, the director, under normal conditions. We do know, however, when there is a defect in transmission along the route of this conducting mechanism, that the auricles as well as the ventricles are capable of establishing their own independent rhythm.

A concise understanding of the process responsible for auricular fibrillation is not at hand. There is some relation between this condition and a failure of the myocardium. A chronic myocarditis may give rise to the same clinical manifestations. There is a more or less relationship in some cases between auricular fibrillation and infection. Usually in individuals thirty to forty years of age who show manifestations of this condition there is a history of some form of rheumatism. The tonsils, gall bladder, appendix, teeth and other sources of infection receive the burden of the blame. There is a definite group of individuals, however, usually fifty years of age and older, who suddenly show such a picture and give no history of infection. In the present state of our knowl-

edge no satisfactory explanation of this condition is at hand. The above classification at the best is very unsatisfactory.

These patients come to the physician showing acute cardiac failure. The classical shortness of breath, cyanosis and edema are present. The right border of the liver is down one to four fingers. The heart is large and any murmur or group of murmurs may or may not be present. The most significant finding, however, is the presence of a wholly irregular irregularity of the heart-beat. The fact that the rate at the apex often exceeds the rate at the wrist seems to clinically substantiate the belief that the heart muscle errs from that characteristic which it is so dutiously supposed to possess, namely, the following of the all or none law. There are many other clinical conditions which are in accordance with this belief, but the dispute of a satisfactory laboratory experiment is beyond the scope of this paper.

The direction of treatment of these cases is of extreme importance and one is appalled when he recognizes that the majority of them are improperly treated, and in the face of a well defined systematic and entirely satisfactory routine, in most instances. Properly treated, the physician is able to view his work with a great deal of satisfaction. In many cases he is unable to initiate a cure, but he is able to bring about relief and comfort and restore useful individuals to reasonable activity. The proper treatment of these cases can be discussed under three headings, all of which are to be looked upon with about equal importance. If one of these procedures is carried out without the other two, the treatment is only one-third done and of very little significance. They are: rest, the proper use of digitalis and re-education which causes to be brought about the establishment of a routine of activity, which is satisfactory to each individual.

The word rest has a more significant meaning than placing a patient in a recumbent position. This patient should be put to bed and relieved of all physical and mental hazards. This is positively essential to assure cardiac rest. This patient should not be allowed to leave his bed or to sit upright, under any circumstances, until he has shown a very marked clinical improvement. It falls within the scope of the physician's duties, to see that this patient does rest. Opiates or rather drastic sedatives may have to be resorted to. We have found luminol to be very satisfac-

tory, and use it as a routine. We use it in one-half grain doses, as frequent as is necessary to keep the patient quiet and satisfied.

The proper use of digitalis is the second factor in the treatment of this condition. It must be given in sufficiently large quantities, enough to bring about a therapeutic effect. Digitalis has a specific and selective action on the cardiac mechanism, acting upon the vagus, directly upon the heart muscle and upon the atrio-ventricular bundle. It slows the heart when the heart is too fast. It causes the individual heart-beat to be of greater force, receiving a greater volume of blood and more completely expelling the same. This is brought about by the restitution of the normal mechanism. Authorities have agreed that these cases should be digitalized. They have also agreed that 15 cc. of the standard tincture are required per hundred pounds body weight, in order to bring about this effect. It is given, one-half the total amount necessary, at the first dose, one-half the remainder at a subsequent dose and so on until the whole amount is taken. Then the patient is given just enough of the drug to supplant that amount which is excreted. This is an individual problem and must be worked out in every case. Some may be beautifully carried on fifteen drops three times daily, others will require twice that amount.

By the correct institution of the above two procedures, the patient is brought to a good clinical condition. At this point he presents the real problem. He probably thinks it imperative that he resume his activities as previous to his illness. This procedure is, of course, out of the question. He should be told that his condition is always potentially serious. He must constantly realize that his heart is not in a normal state, and will never be, but he has the opportunity to live for a long time and be comfortable, if he sees fit to follow a definite routine. He should not allow himself to be depressed over the fact that his heart is diseased. He must refrain from all forms of strenuous exercise. The writer calls to mind a case, the history being about as follows: This man was fifty years of age, he suddenly became ill, and showed upon physical examination, that he had an auricular fibrillation. He was exceedingly fortunate, for two reasons: First, he himself was a sensible man, and more important he was being handled by an able physician. After

he had improved, his physician told him that if he would retire every evening at 8:00 p. m., and arise each morning at 8:00 a. m., if each afternoon he would undress and go to bed at twelve (noon) and remain until 3:00 p. m., he would predict a long and comfortable life. This patient carried out this suggestion to the letter, he lived for twenty years, and was most successful with his business, remaining at its head throughout his life.

It is not our opinion that one is justified in marking these cases invariably as having a hopeless prognosis. Such is true too often, no doubt, but in many instances their response to intelligent treatment is very excellent.

In the recognition of this and other cardiac conditions, the physician must train himself from a clinical standpoint, observation and physical examination far exceed, in importance, other procedures of cardiac diagnosis.

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THE CARE OF OUR PATIENTS BEFORE, DURING AND AFTER CONFINEMENT

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ENID

I offer no apology for selecting this subject for a paper. I am sure no part of medicine has been neglected as much.

In no branch of medicine does the physician, young as well as old, feel confident of securing results as he does in obstetrics. Certainly in no other field of medicine does the doctor take as much for granted and risk as much as he does in the practice of midwifery. The reason for this is that pregnancy and labor are considered to be normal processes and in large proportions seem to be. However, facts disprove this.

In this country about 20,000 women and about 250,000 babies lose their lives yearly as the results of childbirth. Furthermore, of the women who recover, fully one-half suffer for years from the effects of labor. Most of the gynecological operations are necessary because of the damage resulting from labor. Nowhere in nature do we find a normal process which

is associated with a frightful number of deaths and with as much permanent invalidism as results from childbirth. For this reason we cannot call labor a normal process.

Prophylaxis is most essential in pregnancy and for its success, education of the populace is necessary.

During pregnancy there are certain fundamental things a physician should do. First of all a careful history should be taken. Family history. The childbirth experience of the patient's mother and sisters. The patient's past history, especially infections or operations, more particularly abdominal ones. If the patient is multipara, her past obstetric history is important. As a rule a woman will show her obstetrical form in her first labor. A history of miscarriages and their time of occurrence.

The next thing is a careful physical examination: heart, lungs, teeth, tonsils, sinuses, etc. A history or evidence of gonorrhea or syphilis.

Of great importance is the special obstetrical examination. This should include external measurements and an abdominal and vaginal examination.

The patient should see the physician every four weeks. During these visits the blood pressure should be taken, urine examined and the general health of the patient observed. From time to time the abdominal examination should be made and the fetal heart auscultated.

Certain information should be given the patient on her first visit. This is probably best given in printed form. The patient is told to regulate her diet so as to eliminate as much meat and other proteins as possible. She should drink an abundance of water and see that her bowels move daily; a certain amount of light out-door exercise. The clothes should be of such character that there are no circular constrictions anywhere. After motion is felt the corset should be replaced by a light abdominal support which tends to elevate the uterus. During the last three weeks the tub bath should be forbidden.

The physician should note if any of the following symptoms arise: Edema, severe headaches, visual disturbances or epigastric pain. Of the complications which may arise during pregnancy very little can be said in this paper. The usual disturbances are: toxemia, including excessive vomiting and eclampsia, pyelitis and placenta

previa; but fortunately they are not very common.

When a woman goes into labor the best place for her is the hospital. Unfortunately, however, most women are still delivered at home. You will agree that asepsis and antisepsis are the basic principles. In the home they are difficult to carry out but there is no doubt that they can be practiced effectively.

When called to a patient in labor respond as quickly as possible. A careful abdominal examination is made to determine the exact presentation and position of the child. A rectal examination should be made to determine the amount of dilation of the cervix; whether the membranes are intact and the station of the head. The blood pressure should be taken and the urine examined.

The general plan of treatment in the first stage is one of watchful expectancy. If the pains are very strong and delivery is not expected for several hours, it is advisable to give morphine. The bladder is to be watched and the patient encouraged to void every hour. A full bladder may interfere with the progress of labor. The patient should not be permitted to bear down during the first stage, as it is useless and will waste her strength. Furthermore, these expulsive efforts do harm by forcing the undilated cervix downward and prepare the way for a future prolapse. Throughout labor one must watch for signs of trouble.

In the first examination made during labor, it is essential that a contracted pelvis be recognized. If, at the onset of labor in a primipara, the head overrides the pubes, trouble may be expected. An effort should be made to determine whether the head can enter the pelvis. If there is evident disproportion, a Cesarean section should be done. If uncertain, the patient should be given a test labor to see whether the head will enter the pelvis. If it fails after a reasonable length of time, abdominal delivery is advisable.

Another condition which should be recognized early is that of occiput posterior. Fortunately, most of these heads rotate anteriorly and deliver spontaneously. More babies are lost from occiput posterior condition than from any other cause.

First of all the type of labor may give a clue; the pains are weak and irregular, and there is an early rupture of the membranes. The head remains high for a long

time, dilation of the cervix is incomplete, because the head does not fit well. Abdominally, a distinct hollow over the symphysis may be seen, the shoulder is far back from the midline and the foetal heart tones are usually deep in the flank; but may be heard on the opposite side. The small parts are very prominent, anteriorly.

Internal examination will reveal the head high up, partly deflected; the large fontanelles being more accessible than usual because it is nearer the center of the pelvis. The small fontanelles are near the sacrum. After complete dilation occurs, the head should be rotated anteriorly, then the forceps applied, an episiotomy done and the head delivered. In breech cases, a policy of expectancy should be pursued.

In multiparas very little trouble will be encountered; but in primiparas there is a large foetal mortality and a high maternal and foetal morbidity. One should not interfere until the buttocks have been delivered over the perineum. In all primiparas, if the baby is large, a deep episiotomy should be done. Pulling on the child's neck is bad practice and may result in paralysis. Pressure on the child's head from above is the essential thing in the delivery of the aftercoming head. If the head is in the pelvic cavity and difficulty is encountered, forceps should be applied.

While it is generally advisable to pursue a policy of watchful waiting, one must not allow a woman to remain in labor too long. We should not wait to see what a patient can endure; but simply what she can accomplish. On the other hand, because the patient makes a great deal of noise, or the family insists that something must be done, do not interfere too soon. If you feel you cannot take care of a patient alone, do not hesitate to call for assistance. Pituitrin should not be used in the first and second stages of labor. We can control the forceps, but not the pituitrin after it has been given.

Of the graver complications very little can be said in this paper. In placenta previa it is important to save blood all the time. One can never tell how much blood the patient will lose before delivery is accomplished. For placenta previa in a primipara or in a multipara, with an undilated cervix, and profuse hemorrhages and a viable child, Cesarean section is advocated. Other forms of treatment are the use of a rubber bag or Braxton Hicks ver-

sion. Transfusion must not be forgotten as an aid in the treatment of placenta previa. Eclampsia in the home is best treated conservatively. Bleed the patient, give morphine and chloral per rectum and force fluids per rectum. Where it is possible to remove the patient to the hospital, it should always be done. When the patient has had a number of convulsions, the cervix undilated, the child large and near term, I think a Cesarean section is advocated.

The management of the third stage of labor is much more important than most physicians realize; for more women die from accidents occurring in the third stage than during the other two combined. One should treat the third stage as follows:

Wait until signs of placental separation occur. These are:

First: Advance the cord from the vulva.

Second: Rising of the uterus in the abdomen.

Third: The change in the shape of the uterus.

Fourth: The uterus is smaller and harder than before.

If, after thirty minutes, the placenta does not separate, Crede's method may be used. After delivery of the placenta, it should be examined for missing pieces. It is best not to invade the uterus for missing pieces unless there is profuse hemorrhage. It is best to give pituitrin immediately after the baby is born, and ergot as soon as the placenta is expressed. By doing this, we will have very few cases of postpartum hemorrhage. If hemorrhage does result after removal of the placenta and the latter is complete, the bleeding is either due to laceration or to atony of the uterus. If due to laceration, immediate repair should be done. If bleeding is due to uterine atony, the pituitrin or ergot does not suffice, give pituitrin direct into the uterine muscles through the abdominal wall. As a last resort the uterus should be packed and the packing removed after twenty-four hours.

When the third stage is over, the perineum should be inspected for lacerations and repaired immediately.

During the puerperium the patient should be watched for signs of infection; the diet should be looked after, and the bladder and bowels kept empty. The

breast and nipples are to be watched and the latter kept especially clean. Cracked nipples treated with Tr. benzoin or silver nitrate. If the breast becomes engorged and tender, apply a tight breast binder and ice bags. If a pelvic infection should arise, elevate the foot of the bed, place ice bags on the uterus, give ergot, force water and prescribe saline purgative.

After discharging the patient, have her report at the end of six weeks for final examination.

—o— PYELITIS IN CHILDREN

JULIAN FEILD, M.D.
ENID

Pyelitis is an often overlooked cause of fever in children, being diagnosed as bowel trouble, teething, food poisoning, pneumonia, appendicitis, etc., and because of the fact that it usually subsides of its own accord, further obscures the diagnosis.

Pyelitis is essentially a disease of the diaper age, beginning the latter part of the first year, and increasing in frequency until the latter part of the second year, when the incidence decreases with the age of the child. It occurs most frequently in summer, associated with gastro-intestinal disturbances, and in the winter with upper respiratory infections. Girls are much more frequently attacked than boys, seventy-five to one hundred percent, by different observers. There appears to be no natural or acquired immunity. One attack predisposes to another, instead of producing an immunity. Some observers think that the infection remains in quiescent stage for long periods of time.

The pathology is a much discussed question, because of the low mortality, and because of the destructive action of the urine on the mucosa after death. All investigators, however, find little pathology in the pelvis of the kidney. In a recent article, Wilson and Schloss, of New York, reviewed the post-mortem examination of forty-nine children and infants whose urine contained pus during life, some as long as two years before death, and in only two, was there definite evidence of inflammation of the pelvic mucosa. In practically all, there was definite evidence of suppurative interstitial nephritis. In those who had recovered from so-called pyelitis, there were scars found, showing

that there had been a suppurative interstitial nephritis.

There are three theories in regard to the mode of infection, and none have been proven:

First, is the hematogenous or blood borne.

Second, ascending through the urethra, bladder and ureters. In a recent article by Helmholtz in the American Journal of Pediatrics, he concludes from experiments on rabbits that infection takes place by the ascending route in infants. This is most generally accepted because of the greater number of cases in girl's incompetency of ureteral valves, and the fact that the blood stream can be infected from the pelvis.

Third, that the infection is conveyed by lymphatics.

In no disease are the symptoms more varied than in pyelitis. The symptoms are not localizing. Usually, the disease begins with high fever, vomiting, pallor and restlessness, or the child may present no other symptom than fever. In some cases, bladder symptoms are present with frequent and painful urination, but most often these symptoms are entirely absent. There is usually little or no lumbar tenderness.

With identical findings in the urine, one case may appear perfectly well, except for high fever, and another may have marked systemic manifestation, characterized by coma nausea, vomiting, diarrhea, rigidity of the neck, rapid respiration and pulse. These are often mistaken for pneumonia, meningitis, etc. The temperature is usually remittant, sometimes not going above 100, and in others running as high as 106; or the temperature may suddenly jump up, due to a blocking of the ureter with pus, and subside with relief of the obstruction, with a shower of pus in the urine.

The microscopical examination of the urine is the most diagnostic factor. All urine in children, especially girls, contains pus in a centrifuged specimen. In health, in the uncentrifuged, in boys, there are not more than four to six cells in a low power field; in girls, six to eight. Unless there are fifteen or more cells to the field, one is not warranted in making a diagnosis of pyelitis. Then the condition of the external genitals and the method by which the urine was obtained should be taken into consideration. Numerous bacteria in a very fresh specimen is also generally considered diagnostic.

The most common organism is the colon bacillus. If not the primary organism, it practically always predominates later. A diagnosis cannot be made on the examination of one specimen of urine, for there may be a blocking of the ureter, and no pus cells found, when the next day it may be loaded with pus. The urine is usually highly acid and contains varying amounts of albumin, depending on the amount of pus. Very seldom will casts of red blood cells be found.

The most important part of the treatment is washing out of the urinary tract, by giving water. This is sometimes difficult because of vomiting, or the child may be so toxic that it cannot take water. Then the stomach tube may be used, or water given in small amounts, frequently plain, or water sweetened with saccharine with lemon or orange juice added, is best. At least a quart of water in addition to the food should be given to an infant in twenty-four hours. If it is necessary to use the rectum, sixty to one hundred c.c., high in the sigmoid should be given every four hours. Children stand this better than if given by the Murphy drip. Sodium bicarbonate can be given by this route. If it is impossible to use either the rectal or oral route, the peritoneal route is to be preferred. One hundred to four hundred c.c. of fluid may be given every six hours, depending on the size of the child. The injection may be continued until the abdomen is definitely tense. If these are not available, the 7 percent glucose or physiological salt solution may be given subcutaneously or intravenously.

The alkaline treatment is the most satisfactory in conjunction with water. Alkalies in the form of sodium citrate or sodium bicarbonate, in doses of ten grains each, every four hours, and doubled each day until the urine is definitely alkaline, may be used for a child under six months. When the urine is alkalized, the temperature usually drops to normal. Alkalinization probably does good because of its effect on the tissues and its diuretic effect, because sufficient alkalinity can not be produced to inhibit the growth of bacteria. Even though the temperature drops, the urinary re-findings remain the same for several days.

Of the urinary antiseptics, urotropin has given best results. It is very desirable in chronic cases, but after the acute stage, some have an idiosyncrasy to it, small

doses producing hematuria and vomiting. Its action depends on the liberation of formaldehyde, and this occurs in acid urine.

The dose depends on the nerve of the physician. When I was in Boston several years ago, they were advising 90 grains per day to a child eight months old, disregarding the hematuria.

Local treatments have been used with good results, but catheterization of an infant's ureter is difficult and must be done under general anesthetic.

Vaccines have not proved very beneficial.

The general treatment consists of rest in bed, until the fever has entirely subsided, and in severe cases, seven to ten days longer. Very light diet should be given, and local pain and tenderness treated by hot applications and opiates.

The child should not be considered cured until several urine examinations are free from pus and bacteria.

CONSTITUTIONAL FACTORS IN CAUSATION OF STERILITY

Samuel R. Meaker, Boston (Journal A. M. A., May 4, 1929), found that the constitutional states that cause a depression of fertility fall into four general groups: endocrine disorders, chronic intoxications, metabolic faults of extrinsic origin, and conditions of general debility. In twenty-five cases, 112 causative factors were demonstrated, an average of 4.5 factors per case. No case shows less than two factors; some show as many as seven. Of the 112 causative factors thirty-seven or 33 percent, are on the male side, and seventy-five, or 66.9 percent, are on the female side. Of the 112 factors thirty-nine, or 34.8 percent, are constitutional, and seventy-three, or 65.1 percent, are local. Of the thirty-seven male factors twenty-two, or 59.4 percent, are constitutional, and fifteen, or 40.5 percent, are local. Of the seventy-five female factors seventeen, or 22.6 percent, are constitutional, and fifty-eight, or 77.3 percent, are local. Three cases show absence of constitutional factors in both partners. Seven cases show these factors in the male alone, three in the female alone, and twelve in both partners. No case shows absence of local factors in both partners. Fifteen cases show these factors in the female alone and ten in both partners. He concludes that in cases of sterility, multiple causes are the rule rather than the exception. The male carries a share of the responsibility in the great majority of cases. Constitutional factors depressing the fertility of one or both partners are operative in a large proportion of cases. The incidence of constitutional faults is greater in the male than in the female; on the male side, constitutional faults are commoner than local faults. The intelligent management of sterility demands as a routine, in addition to gynecologic and urologic investigation, a comprehensive survey of the constitutional states of both husband and wife.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

CANCER, THE DANGER OF MANIPULATION AND MASSAGE

Well informed physicians, especially surgeons, are called upon to deal with many phases of malignancy, and have noted for many years and incessantly called attention to the danger of manipulation and massage and other types of irritating treatment of pre-cancerous and cancerous growths. It is not necessary to warn the well informed of these dangers for they always bear them in mind, but we still have with us the "cancer quack," the cults and especially the osteopaths and worse than that the chiropractors, who are the main offenders in precipitating

to the stage of incurability, a condition which might be curable, or at least alleviated for many years by faithful and proper management.

Horsley' in considering the treatment of cancer lays special stress upon the ease of production of metastases. He especially points out the great aid in the treatment of cancer by the recent system of grading of malignancy as proposed by A. C. Broders, of The Mayo Clinic. Horsley thinks, and rightly, that according to the grading scale, that a malignant growth, grade one, may be easily ended by a very local operation; whereas cancer with histologically less differentiated cells require extensive operation, bolstered up by radiology in order to effect a cure. Experimentally, Knox, Tyzzer and Marsh have shown that in mice, massage of a malignant tumor either transplanted or spontaneous produces more frequent and more extensive metastases than in controls in which the growth is not massaged.

There should be some way, if the chiropractors and osteopaths will not be educated, to at least warn them of the danger of manipulation of tumors. Tumors of the leg, and tumors of the breast which have been massaged, and the rubbing in of ointments, provide a distinctly more unfavorable prognosis than if such had not been applied. Surgeons are constantly noting that cancers which have been "tinkered" with often come to a fatal end, while those histologically a great deal more malignant but which had been treated by means other than massage, were free from recurrence years after operation.

As to the "cancer quack" or the foolish doctor, who is not ordinarily considered a quack in the locality in which he lives, who still persists in applying arsenic pastes and similar often useless irritants, there seems to be no hope except to let them pursue their course of destruction upon their gullible clientele. Within the last few years the writer has had his attention called to a number of cases of cancer so treated. Probably all of these cases, treated properly in the first place would have recovered, but due to the type of treatment they received, a fatal outcome was assured.

More intelligent people who have small growths, benign tumors or a history of cancer in their family are easy to interest in this matter. Perhaps it might be well to occasionally hold a clinic or a meeting

against cancer and to which should be invited every person interested.

1. Research and Medical Progress and Other Addresses, by J. Shelton Horsly, M.D., Attending Surgeon, St. Elizabeth's Hospital, Richmond, Va. C. V. Mosby Company, 1929.

THE NEXT ANNUAL SESSION, SHAWNEE, MAY 26, 27, 28, 1930

The above dates have been selected as the best available for the next Annual Session.

We wish to make the following statement for the information of our membership.

The General Chairman, who will select local committees and who will have charge of all local arrangements, is Dr. R. M. Anderson, Shawnee.

We are very fortunate in having secured a building with more than enough large rooms to accommodate each section and all the exhibits, at the same time and without crowding on one floor.

The Council will meet at 3:00 p. m., May 26th; the House of Delegates at 7:30 p. m., May 26th and 8:00 a. m., May 27th.

The invited guests so far are Drs. C. M. Rosser, Dallas; Austin A. Hayden, Chicago, treasurer of the American Medical Association, and C. M. Sistrunk, Dallas.

The General Session, open to the public, at which the president's address, the address by Dr. Rosser and probably other short addresses will be delivered, will be held Tuesday evening, May 27th. Wednesday evening, May 28th, will be held orations on medicine, delivered by Drs. H. Coulter Todd, Oklahoma City; W. P. Fite, Muskogee; and D. W. Griffin, Norman, after which will follow the president's reception and dance.

Arrangements will be made for daily clinics on orthopedic surgery, these to deal with the simple problems of fractures and joint injuries. The director of these clinics will be Dr. Willis K. West, Oklahoma City, and such other assistants as he selects. The physicians of Shawnee will announce later the presentation of certain dry clinics, both medical and surgical. Some of these will likely be in charge of Dr. Sistrunk and others.

Hotel headquarters will be the Aldridge Hotel.

ENID HOSPITALS AND MEDICAL RESOURCES

This issue is devoted practically in entirety to the production of Enid physicians. In connection with this, Enid, medically, would not be represented without some notice of its outstanding hospital resources. Considering the population, which is approximately 35,000, Enid at this time is one of the best supplied cities of its size in the United States, in so far as its hospital facilities and medical profession is concerned. The writer made a personal visit to all the hospitals of Enid a few years ago at which time they were filled to capacity and with unusually important cases.

Enid hospitals are as follows:

UNIVERSITY HOSPITAL

The University Hospital was organized by Dr. S. N. and Dr. E. A. Mayberry in 1908. At the present time it is owned and operated by Dr. S. N. Mayberry.

This hospital has gradually grown until at the present time it has a capacity of fifty beds. It maintains a training school for nurses and is affiliated with Phillips University.

STAFF

Dr. S. N. Mayberry, Chief Surgeon.

Dr. Paul B. Champlin, Surgery and Diagnosis.

Dr. D. D. Roberts, Obstetrician.

Dr. W. H. Rhodes, Eye, Ear, Nose and Throat Specialist.

Dr. W. A. Aitken, Surgery and Internal Medicine.

Dr. J. W. Baker, General Medicine.

Dr. R. C. Baker, General Medicine.

Dr. B. T. Bitting, Internal Medicine and Nervous Diseases.

Dr. Glenn Francisco, General Medicine and Consultant.

Dr. J. W. Francisco, General Medicine and Consultant.

Dr. O. R. Gregg, Urologist.

Dr. W. L. Kendall, Internal Medicine and Surgery.

Dr. W. P. Nielson, Surgery and Internal Medicine.

Dr. J. W. Moore, General Medicine.

Dr. J. M. Watson, General Medicine and Diagnosis.

Dr. J. R. Walker, Eye, Ear, Nose and Throat.

ENID GENERAL HOSPITAL

The Enid General Hospital was organized as a corporation in 1910 under the laws of the State of Oklahoma. It has

gradually grown until today it is the fifth largest hospital in the State. The present capacity of the hospital is 100 beds.

This hospital maintains a training school for nurses with a full time instructress in charge.

In the east wing of the hospital are the offices of the Enid clinic.

STAFF

Dr. F. A. Hudson, General Surgery.
 Dr. W. E. Lamerton, Internal Medicine.
 Dr. A. L. McInnis, Gynecology and Obstetrics.
 Dr. Julian Field, Obstetrics and Diseases of Children.
 Dr. S. H. McEvoy, Anaesthetist and Metabolism.
 Dr. A. S. Piper, Eye, Ear, Nose and Throat.
 Dr. H. H. Hudson, Assistant in Surgery.
 Earl E. Cary, Laboratory Technician.
 R. A. MacDonald, Business Manager.
 Rose L. Dunning, R. N., Superintendent.
 N. G. Jung, R. N., Surgical Supervisor.
 Sue Travis, R. N., B. S., Instructress.
 L. M. Gleason, Field-Secretary.

ENID SPRINGS HOSPITAL

Enid Springs Hospital is geographically located in one of the most beautiful parks in the State of Oklahoma, that being the Government Springs Park, a forty acre tract in the center of the city of Enid.

The hospital consists of fifty-six rooms, modern in every particular, containing one of the best equipped physiotherapy departments in the State, while across the street are the offices, nurses home and clinical buildings.

It was founded in 1914 by Dr. G. A. Boyle, past-president of the Oklahoma State Medical Association. It has been owned by T. B. Hinson since 1921, and operated by the following staff: Dr. T. B. Hinson, Dr. J. R. Swank, Dr. I. V. Hardy, Dr. P. B. Gardner, Dr. P. P. VanArsdel, Dr. M. E. Sheets and Dr. Geo. A. Landers.

INDEPENDENCE HOSPITAL

January 1, 1927, four physicians joined themselves together for the practice of medicine in Enid, and formed the North Independence Hospital Corporation, and on July 1, of the same year, they moved into their new combination office and hospital building, at 502 North Independence.

This structure is a two and one-half story brick, semi fire-proof, facing on North

Independence and West Pine, two blocks north of Enid's new hotel. The basement houses the laboratory, physiotherapy, and culinary departments. The offices and X-ray are on the first floor, while the entire second floor is given over to hospital rooms, all patients having private rooms, of which there are twenty-two.

The original plant contained twelve beds with two wards of two beds each, but in May, 1928, an addition became necessary and other rooms were added.

The group working at this hospital with their offices in the building are as follows:

W. B. Newell, M.D., Medicine and X-ray.
 V. R. Hamble, M.D., Genito-Urinary and Anaesthetist.
 P. W. Hopkins, M.D., Eye, Ear, Nose and Throat.
 C. W. Tedrowe, M.D., Surgery.
 Miss Lillian Bailey, R.N., Superintendent.
 Mrs. Anna Johnson, R.N., Night Nurse.
 Miss Elsie Reed, Office Secretary.
 Miss Daisy Crane, Laboratory Technician.

Through hard work and close application, the hospital has grown steadily in influence to the community.

Editorial Notes—Personal and General

DR. A. J. WEEDN, Duncan, attended a meeting of the American College of Surgeons at San Antonio, in January.

DR. W. ALBERT COOK, Tulsa, visited balmy Texas coast points in January for the purpose of hunting ducks. After nearly freezing he came back home.

DR. J. W. SHELTON, of Ardmore, announces his removal to 1013 Medical Arts Building, Oklahoma City, his practice being limited to eye, ear, nose and throat.

DRS. L. S. WILLOUR, McAlester, and WILLIAM P. FITE, Muskogee, attended the branch meeting of the American College of Surgeons at San Antonio in January.

DR. C. M. COCHRAN, Okemah, is reported suffering from an injured foot sustained when his horse slipped and fell. Dr. Cochran's leg was pinned beneath the horse.

THE AMERICAN MEDICAL ASSOCIATION will hold its eighty-first session in Detroit, June 23-27, 1930. Registration and exhibits will be held in the Drill Hall of the Masonic auditorium.

BRYAN COUNTY MEDICAL SOCIETY elected the following officers at a recent meeting: Dr. A. J. Wells, Calera, president; Dr. C. G. Price, Durant, vice-president; Dr. James L. Shular, Durant, secretary.

DR. LUCILE SPIRE BLACHLY, Oklahoma City, formerly director of the State Bureau of Maternity and Infancy, has gone to Jacksonville, Florida, where she will be connected with the state health department.

CRAIG COUNTY MEDICAL SOCIETY elected officers for 1930: Dr. C. S. Neer, Vinita, president and alternate; Dr. J. F. Walker, Grove, vice-president; Dr. W. R. Marks, Vinita, secretary; Dr. F. M. Adams, Vinita, delegate.

SEMINOLE COUNTY MEDICAL SOCIETY met December 16th, 1929, and elected the following officers for 1930: Dr. T. A. Hill, Seminole, president; Dr. W. S. Martin, Wewoka, vice-president; Dr. T. H. Briggs, Wewoka, secretary-treasurer.

TULSA COUNTY MEDICAL SOCIETY elected the following officers for 1930: Dr. J. Franklin Gorrell, president; Dr. W. A. Dean, vice-president; Dr. Carl F. Simpson, secretary-treasurer; Drs. H. W. Ford, N. R. Smith and W. S. Larabee, censors.

LEFLORE COUNTY MEDICAL SOCIETY held their monthly meeting at Poteau, December 12, 1929, electing the following officers for 1930: Drs. W. L. Shippy, Wister, president; E. M. Woodson, Poteau, vice-president; W. F. Lunsford, Poteau, secretary-treasurer.

DR. E. E. RICE, well known Shawnee physician, is reported critically ill at his home. Dr. Rice suffered injuries last October when he drove his car into an oil train near Oklahoma City. Improving slightly after the accident, Dr. Rice has grown steadily worse during the last two months.

Dr. G. E. STANBRO, Pawhuska, is in Europe taking post-graduate work. He will be in Vienna until September, 1930. On returning to America he will reside temporarily in Philadelphia where he will take up the study of surgery in the University of Pennsylvania Post-Graduate School of Medicine for one or two years.

DR. RAY M. BALLYEAT, Oklahoma City, announces the removal of the Balyeat Hay Fever and Asthma Clinic to 600-620 Osler Building, 1200 North Walker, and the addition to his staff of Dr. Fannie Lou Brittain. Dr. Brittain will give special attention to urticaria, migraine and the allergic types of eczema and colitis.

AT ANNUAL MEETING of the Staff of St. John's Hospital, Tulsa, January 21st, the following officers were elected for 1930: Dr. C. H. Haralson, president; Dr. J. Fred Bolton, vice-president; Dr. W. F. McAnally, secretary. The Board of Governors is as follows: Drs. Samuel Goodman, Fred A. Glass, C. D. F. O'Hearn and D. M. Macdonald.

JEFFERSON COUNTY MEDICAL SOCIETY elected the following officers for 1930: Dr. J. I. Hollingsworth, Waurika, president; Dr. J. M. McPherson, Terral, vice-president; Dr. J. I. Derr, Waurika, secretary-treasurer; Dr. W. M. Browning, Waurika, delegate to the state meeting; Dr. L. L. Wade, Ryan, alternate.

CUSTER COUNTY MEDICAL SOCIETY met December 11, 1929, and installed the following officers for 1930: Dr. Gordon D. Williams, Weatherford, president; Dr. Frank H. Vieregg, Clinton, vice-president; Dr. E. E. Darnell, Clinton, secretary-treasurer, and delegate to state meeting; Dr. Ellis Lamb, Clinton, alternate; Dr. C. J. Alexander, Clinton, censor.

McINTOSH COUNTY MEDICAL SOCIETY elected the following officers for 1930, at their regular meeting, December 28, 1929: President, Dr. J. H. McColloch, Checotah; vice-president, Dr. F. L. Smith, Eufaula; secretary-treasurer, Dr. W. A. Tolleson, Eufaula; censor, Dr. D. E. Little, Eufaula; delegate, Dr. W. A. Tolleson, Eufaula; alternate, Dr. G. W. West, Eufaula.

GARVIN COUNTY MEDICAL SOCIETY elected the following officers for 1930, at a recent meeting: Dr. Hugh Monroe, Lindsay, president; Dr. L. P. Smith, Elmore City, vice-president; Dr. John Calloway, Pauls Valley, secretary-treasurer; Dr. G. L. Johnson, Pauls Valley, delegate; Dr. W. P. Greening, Pauls Valley, alternate; Dr. T. C. Branum, Pauls Valley, censor.

GREER COUNTY MEDICAL SOCIETY met January 24th, at the offices of Dr. J. B. Hollis and installed the following officers: Dr. C. C. Shaw, Mangum, president; Dr. O. R. Jeter, Mangum, vice-president; Dr. J. B. Hollis, Mangum, re-elected secretary-treasurer; Dr. G. Fowler Border, Mangum, delegate to the state convention. Dr. Hollis was selected as alternate.

CADDO COUNTY MEDICAL SOCIETY held their annual meeting in Anadarko, December 30, 1929, and the following officers were elected to serve for 1930: President, Dr. I. S. Butler, Carnegie; vice-president, Dr. Wade H. Vann, Cement; secretary-treasurer, Dr. P. H. Anderson, Anadarko; delegate to the state association, Dr. E. W. Hawkins, Carnegie; censor, Dr. S. E. Williams, Hydro.

KIOWA COUNTY MEDICAL SOCIETY met in regular session on January 2, 1930, at the Nash Hotel, Hobart, and elected the following officers for 1930: Dr. H. C. Lloyd, Hobart, president, Dr. A. H. Hathaway, Mt. View, vice-president; Dr. J. H. Moore, Hobart, secretary; Dr. B. H. Watkins, Hobart, delegate; Drs. J. L. Adams, Hobart, Wm. McIlwain, Lone Wolf, J. D. Ballard, Mt. View, censors.

PAYNE COUNTY MEDICAL SOCIETY elected the following officers for 1930: President, Dr. W. N. Davidson, Cushing; vice-president, Dr. C. E. Sexton, Stillwater; secretary-treasurer, Dr. R. E. Roberts, Stillwater; censors, Drs. D. L. Perry, Cushing; W. B. Hudson, Yale; D. J. Herrington, Cushing; delegate, Dr. R. E. Waggoner, Stillwater; alternate, Dr. H. C. Manning, Cushing; committee on public policy, Dr. R. J. Shull, Stillwater.

COMANCHE COUNTY MEDICAL SOCIETY met January 14th at Lawton and the following officers were elected: President, Dr. P. G. Dunlap; vice-president, Dr. H. A. Angus; secretary-treasurer, Dr. L. W. Ferguson; censor, Dr. L. T. Gooch, all of Lawton. Dr. E. B. Dunlap presented a very interesting paper on "Inflammatory Diseases of the Tubes and Ovaries," which was followed by a general discussion, led by Dr. W. J. Mason.

CARTER COUNTY MEDICAL SOCIETY met January 14th at the Hardy Sanitarium, Ardmore. Dr. F. P. von Keller, president, gave a talk; Dr. R. C. Sullivan read a paper, "Toxemias of Pregnancy." The following officers were elected for 1930: Drs. F. P. von Keller, president; F. A. Harrison, vice-president; R. C. Sullivan, secretary-treasurer; Walter Hardy and Walter Johnson, delegates to the State convention; R. H. Henry and F. W. Boadway, alternates. All of Ardmore.

CLEVELAND COUNTY MEDICAL SOCIETY doctors and their wives were entertained with a luncheon at the Faculty Club, Norman, January 16th, by the retiring president, Dr. Gayfree Ellison and his wife. A paper, "Observation of Post-Volstead Alcoholic Psychosis," by Dr. C. A. Brake, was well received. The following officers were installed: Dr. Charles Rayburn, president; Dr. M. M. Wickham, vice-president; Dr. B. H. Cooley, secretary-treasurer; Drs. C. S. Bobo and B. H. Cooley, delegates to state convention.

MUSKOGEE COUNTY MEDICAL SOCIETY met January 27th and despite the inclemency of the weather more than 30 physicians were present. Dr. Ray M. Balyeat, Oklahoma City, spoke upon "Allergic Diseases, other than Hay Fever and Asthma, including Urticaria, Migraine and Certain Forms of Eczema and Colitis." Dr. H. H. Turner, Oklahoma City, spoke and illustrated his subject, "Endocrinology in General Medicine." Dr. Turner pointed out that many cases, heretofore considered hopeless, are easily amenable to treatment and great benefit if a proper diagnosis is made and especially if it is made at the proper time.

POTTAWATOMIE COUNTY MEDICAL SOCIETY elected the following officers at their annual meeting, January 18th: Drs. J. E. Hughes, Shawnee, president; J. I. Gaston, Shawnee, vice-president; R. C. Kaylor, McCloud, second-vice-president; T. C. Sanders, Shawnee, third vice-president; Wm. M. Gallaher, Shawnee, secretary-treasurer. The out-going president, Dr. Eugene Rice, gave an address on "The Treatment of Fractures." Rev. I. W. Armstrong, pastor of the M. E. church, South, gave an interesting talk on "The Physician As Seen by the Layman." Dr. C. A. Thompson, Muskogee, secretary of the Oklahoma State Medical Association, gave a very instructive talk on "Some Phases of Surgery—Fractures, Anesthesia."

WASHINGTON COUNTY MEDICAL SOCIETY held their annual banquet meeting, January 14, at Bartlesville, and elected the following officers for 1930: Dr. W. H. Kingman, Bartlesville, president; Dr. F. S. Etter, Bartlesville, vice-president; Dr. J. V. Athey, Bartlesville, secretary; Dr. J. P. Vansant, Dewey, treasurer; Drs. W. H. Kingman and J. V. Athey, delegates to

State association; Drs. O. S. Somerville and W. E. Rammel, both of Bartlesville, alternates. The following program was presented: Master of Ceremonies, Dr. L. D. Hudson; Invocation, Rev. Paul C. Payne; Dinner; Valedictory, Outgoing President, Dr. G. V. Dorsheimer; Salutory, Incoming President, Dr. W. H. Kingman; Vocal Solo, Mrs. W. P. Ringo, accompanied by Mrs. E. L. George; Reminiscences, Dr. O. I. Green; Doctors, From the Viewpoint of a Doctor's Wife, Mrs. F. S. Etter; Address, Rev. Paul C. Payne; Three Minute Talks, various physicians.

THE AMERICAN SOCIETY for the Control of Cancer has generously booked the wonderful Dr. Canti cancer movie film for showing in the State of Oklahoma for a fifteen-day period, beginning April 7th. The exact places of showing have not yet been arranged. Any county medical society or groups of county societies that desire the showing of this film should get in communication with Doctor E. S. Lain, state chairman, Medical Arts Building, Oklahoma City, at once that the schedule may be arranged as early as possible.

DR. WILLIAM B. MEAD

WHEREAS, Dr. W. B. Mead, a member of the Comanche County Medical Society, was taken by death September 12, 1929, and

WHEREAS, The Comanche County Medical Society sustained the loss of one who was an active and honored member, the medical profession has lost one who always contributed to its ethics and dignity and the community was deprived of the services of a respected citizen and physician.

BE IT RESOLVED, That a copy of these resolutions be sent to his bereaved family, to the Journal of the Oklahoma State Medical Association and be spread upon the minutes of the Comanche County Medical Society.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Relation of Vincent's Angina to Fusospirochetal Disease of the Lungs, David T. Smith, M.D. J. A. M. A., Vol. 94, No. 1.

Three cases are reported which followed contact with cases of Vincent's Angina, two of which were primary infections of the pharynx with subsequent extension into the lungs, and one case was primary in the lungs and began four days after contact with a case of Vincent's Angina.

Fusiform bacilli and spirochetes were demonstrated in the sputum of all three cases. Recovery was prompt after the administration of sulpharsphenamine.

The complicating pulmonary lesions which follow Vincent's Angina may take the form of pulmonary gangrene, pulmonary abscess, ulceration of the bronchi, lobar and bronchopneumonia and empyema; and these conditions are often confused with pulmonary tuberculosis.

Many of the patients with pulmonary lesions recover spontaneously, but in some the condition terminates fatally. The author recommends the early administration of nearsphenamine or sulpharsphenamine in all cases in which the organisms can be demonstrated in the pulmonary sputum.

Benign Neoplasms of the Bronchus. Report of a Case of Fibrolipoma of the Left Main Bronchus Removed through the Bronchoscope by M. C. Myerson, M.D., New York.

In the past few years, the bronchoscope has proved to be an increasingly important factor in the observation and removal of neoplasms. Benign neoplasms are benign only in the histologic sense. As they grow they cause obstruction of the air passage and interfere with the respiratory function and the vital capacity of the individual; they also favor the production of bronchiectasis in the structures which are distally located. Up to the present time, there are records of ten neoplasms that have been removed bronchoscopically.

The author cites one case from his own experience in which a patient with pulmonary symptoms was treated for tuberculosis, asthma, chronic pulmonary fibrosis and myocarditis without any improvement. At the end of a year of illness he was referred for bronchoscopic study, which revealed the presence of a fibrolipoma in his left main bronchus. Upon the fourth bronchoscopy, complete removal and extraction of the tumor was accomplished, and six weeks later the patient was back at work.

This case demonstrates the importance of including bronchoscopy in the study of pulmonary conditions with obscure or atypical symptoms.

Spontaneous Nontuberculous Pneumothorax in Infancy and Childhood. A Review of the Literature with Three Additional Cases, by E. Gordon Stoloff, M.D., New York City.

After a careful review of the literature from 1844 to the present date, the author finds only 84 cases of spontaneous pneumothorax of nontuberculous etiology. Tuberculous disease of the lungs and pleurae is a frequent cause of spontaneous pneumothorax; in adults it is estimated as being the etiologic factor in 90 percent or more of the cases, in children it is considered as causing about 40 percent of them.

The relative frequency of the different types of nontuberculous etiology, as represented on the basis of the 84 cases is as follows: pneumonia, 30; gangrene, 11; emphysema, 11; pertussis, 4; congenital defect, 4; lung abscess, 3; bronchiectasis, 3; foreign body, 3; lung apoplexy, 3; empyema, 1; and others including typhoid, influenza bronchitis, rupture of pleura and tear of the lung.

Expressed in terms of pathogenesis, pneumothorax may be caused by rupture (a) following degeneration or (b) due to congenital or mechanical defect of the lung.

The roentgenogram is usually so characteristic as to make the diagnosis unmistakable. Pneumothorax is seen as partial or total, unilobar or multilobar.

The author adds three cases of nontuberculous spontaneous pneumothorax to the literature; all were post pneumonic, simple, and made uneventful recoveries. Their recognition was made on the basis of roentgenography; they were characterized by a sparsity of clinical manifestations and signs which probably would not have sufficed for a diagnosis in the absence of the roentgenograms and fluoroscopy.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Treatment of Ankle Sprains. Charles P. Hutchins. Boston Med. and Surg. Journal, CXCII, 91 July 21, 1927.

In his article on ankle sprains, Hutchins first inventories the pathological possibilities, that is, the extent to which ligaments and tendons may be involved without fracture or dislocation of bone.

Sprain of the ankle is most often caused by unguarded movement, by which the foot is turned suddenly inward (rarely outward), with sufficient force to rupture the ligaments, and possibly some of the fibers of the muscles, and to strain the tendons and sheaths.

An anatomical consideration is presented by the author to demonstrate that eversion sprains are much less common, due to the arrangement of structures about the ankle joint. He states, too, that when the foot is at a right angle to the lower leg, or when dorsally flexed to a lesser angle than that, sprains at the ankle joint are rare.

Treatment consists of strapping, the following technique being that employed by Hutchins.

"The patient is seated upon a table at such a level that his depending foot hangs six or eight inches lower than the knee of the operator, who sits facing him. With adhesive straps one and one-half inches wide cut to length, the patient's foot is placed upon the operator's knee so that the ankle is dorsally flexed to eighty or eighty-five degrees from the long axis of the tibia and rests the full weight of the extremity upon the head of the fifth metatarsal. The patient's leg must be wholly passive. This leaves the leg on straight alignment from hip to ankle joint, and throws the foot into slight eversion. The first strap runs spirally around the lower calf on the medial side, across the instep and cuboid, under the sole, falling into a natural sweep on the dorsum. This is the salient control of the hypermobility. The second strap is a counterpart in the opposite direction, acting to limit eversion, and balancing the first. The third support is a stirrup from the middle calf, and passes in the lateral plane of the ankle joint. The fourth and narrow strip retains the third support in contact with the leg at its isthmus above the malleoli. It is imperative that the patient's leg be maintained in the same posture throughout the dressing, and his muscle action inhibited."

When the joint is firmly held by support, the patient is encouraged to walk; for functional use. if it does not cause further injury, is the best stimulant to repair. When the angle between the foot and the lower leg exceeds ninety degrees, the plaster is changed. Diathermy is used in conjunction with the strapping.

Acute Infective Osteomyelitis Treated by Conservative Methods. H. H. Brown. *Lancet* I, 928, April 30, 1927.

An attempt was made to save the diaphysis by "thorough disinfection of the bone."

Boy, aged six, admitted June, 1921. Had fallen and bruised left tibia six days previously. Temperature 105. Pulse 160. Left leg swollen, red, acutely tender.

Operation: Incision along whole length of inner surface of shaft of tibia. Whole of diaphysis bathed in pus, periosteum everywhere separated. Pus was washed away, surface of bone and periosteum scrubbed with gauze soaked in 1 to 20 carbolic, then methylated spirit, then ether and packed off with gauze. The shaft of the bone similarly cleaned with carbolic, spirit and ether. Slips of gauze soaked in bipp were placed between the periosteum and the bone, and the cavity was also stuffed with gauze soaked in bipp.

The following day the temperature fell to normal and all oedema, redness and tenderness had disappeared. The gauze packing was removed after three days. The diaphysis retained its vitality and no involucrum was formed round it.

A small sequestrum about three-quarters inch in length was extruded from the upper end of the tibia.

At present time the leg appears normal, except for the operation scar. A radiograph shows that the tibia is also normal in structure, and that there is no thickening or deformity.

Exostosis. Henry W. Meyerding. *Radiology*, VIII, 282, April 1927.

Exostoses are grouped with the benign osteochondromas. From the X-rays can be determined the diagnosis; size, shape and position, and the progressive growth and structural changes. The author believes that heredity and metabolic changes in childhood are among the more important, and trauma a less important etiological factor. Seventy-nine and seven-tenths percent of exostoses and seventy-five percent of sarcomas occur between the ages of eleven and forty years.

The symptoms are usually painless swelling or deformity with mild tenderness on deep pressure; occasionally dull, steady, localized pain. Blood examination, Wassermann, and urinalyses were usually negative.

The exostoses were widely distributed. The lower ends of femur and tibia, the upper ends of humerus and tibia, are the favorite sites, in the order named. Sarcoma has a somewhat similar distribution. The cortical point of origin is usually in the diaphysis near the epiphyseal line. The mass is pedunculated or sessile. The cortex may appear continuous with that of the tumor and medullary bone may be continued into it. Cartilage usually caps the head and often pre-

sents a cauliflower-like appearance. A bursa covers the well formed tumors. There is no invasion of surrounding tissues. Bone is not absorbed, except as the tumor causes pressure on neighboring bone. The periosteum covering the tumor is normal. Growth is usually away from the joint.

Treatment is operative removal, if the tumor is causing deformity, inconvenience or pain. Excision, with snug layer closure to prevent hematoma, is usually sufficient. Cauterization or post-operative radiation may be used to insure against recurrence. The bursa and all cartilage must be excised, preferably en masse with the tumor.

The prognosis is good; recurrence in about ten percent. Six case histories and a number of excellent X-ray illustrations are presented.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

A Hereditary Ectodermal Dystrophy. H. R. Clouston, Canad. M. A. J., 21:18, 1929.

Six generations of a people of French-Canadian origin, represented by one hundred nineteen cases of hereditary dystrophy were analyzed, forty of which were seen by the author. It was found that the dystrophy followed the laws of mendelian hybrids; that both sexes transmitted it and were affected both alike; and that their offspring carried the dystrophy dominantly. The epidermis itself was involved, and its appendages, and clinical evidence showed that the teeth, the nervous system and those glands of internal secretion, which are of ectodermal origin, were also affected. The condition of the hair, hypotrichosis from birth, was due to failure of pilosebaceous system to develop. The dystrophy was inclined to diminish in succeeding generations as a direct result of better living conditions. It occurred less frequently, and was less severe. There are more than six thousand cases estimated in America, according to the author. Illustrative charts and photographs, and a critical review are contained in the paper.

Experimental Investigation on Allergy and Immunity in Trichophyton Infection. E. Rivalier. *Ann de dermat et syph.* 10:618, June, 1929

Rivalier reviewed the previous work on this subject and added his own experience and findings from his investigation in this infection in guinea pigs. He found that trychopytic infection in these animals when produced by a highly pathogenic form of the organism produced profound tegumental and systemic alterations of an allergic type. Immunity in the strict sense does not seem to be present. Cutaneous manifestations of allergy are sufficient explanation of the response of an animal of a second attempt at reinoculation, and there is perfect accord between the degree of resistance to a new infection and the intensity of the allergy. The greater the sensibility the more marked the cutaneous reaction to the infection and vice versa. The author criticizes the careless use of the term immunity and so far as trichophyton infection is concerned, believes that

allergy is the paramount mode of defense. From the practical standpoint, from this idea the preventative and curative treatment would be fruitless. If it has any effect it would produce a diminution of the allergic tendency and therefore a lowered tendency to the infection.

Etiology of Granuloma Annulare. D. B. Saenz and A. Oteiza, *Bol. Soc. Cubana de dermat. y sifil.* 1:12 (June) 1929.

Saenz and Oteiza believe that the conception regarding the etiology of the granuloma annulare must be modified. It should not be considered as a tuberculid, but as a condition of infectious origin, its beginning taking place in the blood vessels. This infection, the author states, may be caused by tuberculosis, syphilis, leprosy, and sometimes a "focal sepsis." Histologic features of granuloma annulare are not true specific. They are a remarkable evidence of the close resemblance often seen in tuberculous, syphilitic and leprosy infiltrations. The histologic feature in itself is not decisive in determining the lesion. Granuloma annulare is an objective morphologic syndrome; the determination of its etiology requires besides the history of the case and routine experimental research, the evolution features of the process. The author has studied five cases of granuloma annulare during the last nine months. Three of the patients were children from 9 to 19 years of age, and two of them were adults, aged 50 and 53, respectively. One would conclude that the disease is not as rare as it has been believed.

The Action of Pastes. G. H. Percival, *Brit. J. Dermat.*, 41:231 (June) 1929.

An investigation of the absorptive power of pastes conducted through a series of experiments with petrolatum, hydrated wool fat, a mixture of zinc oxide 25 percent and petrolatum 75 percent, and a mixture of zinc oxide, hydrated wool fat and petrolatum in the proportions of 25, 37.5 and 37.5 percent respectively, revealed the following results: petrolatum, hydrated wool fat and mixtures of these substances with zinc oxide fail to absorb water from solutions with which they are in contact. Hydrated wool fat apparently does the reverse, and therefore loses a large proportion of its water. Hence, pastes cannot be said to have an advantage over ointments in the treatment of certain skin diseases, because it absorbs watery exudates. But it is in some way due to the alteration of the consistence of the fatty base as a result of the addition of the inert powder. Because certain drugs do not leave fatty bases to go into watery solutions is not evidence that they are inactive when applied in the form of ointment. Some of those which have no tendency to do so possess strong therapeutic action. They probably unite with the oily sebaceous secretion covering the skin surface and in this way form an antiseptic envelope in close contact with living cells, and this union might lead to actual penetration of the cells through the lipid content of the cell membranes.

Contribution to the Diagnosis and Treatment of Rhinoscleroma. V. R. Sabouraud, *Ann. d. dermat. et syph.*, 10:481, (May) 1920).

Three cases of rhinoscleroma are reported in

detail. The diagnosis may be ascertained with certainty by bacteriologic, serologic, and histologic examination. In certain latent forms, complement-fixation and agglutination reactions may reveal the true nature of the disorder. The author states that induration is sometimes absent. In early cases, radiotherapy may cure, but in advanced cases amelioration is the most that can be anticipated. Vaccine therapy is sometimes beneficial, and malarial inoculations and intravenous injections of antimonium tartrate may be tried.

Anatomic and Clinical Studies on the Problem of Syphilitic Infection. G. Marinesco, *Ann. de dermat. et syph.*, 10:618, (June) 1929.

Marinesco's main theme is a consideration of the question of the existence of a dermatropic and neurotropic strain of *spirochaeta pallida*. He sets forth and critically reviews the main arguments and leading contributions on the subject.

The author states in detail that of three cases personally observed, in which there were syphilitic lesions in the neuraxis in both parenchymal and interstitial tissues, that such cases do not support the conception of a dual strain of spirochetes. On considering the reasons for the localization of spirochetes in the parenchyma of the brain, Marinesco records some investigations along electrochemical lines that throw light on the problem. *Spirochaeta pallida* exists best in an alkaline medium, and it is probable that in parenchymal neurosyphilis, the pH concentration of the neuraxial parenchyma offers optimum electrophysical conditions for the growth of syphilitic organisms.

This research, the author thinks, will offer an argument decidedly in favor of the importance of the terrain in the localization and concentration of spirochetes in the brain. In general paralysis it is probable that the spirochetes have found exceptionally favorable conditions for their growth in the brain. It has already been shown that malaria treatment causes a change in pH concentration toward normal values. In searching for the cause of parenchymal neurosyphilis, the terrain, (its electro-chemical state being one of the important factors) must be given more consideration than the invading organism. It is improbable that *spirochaeta pallida* has developed special tissue affinities; it is much more likely that it flourishes where environmental conditions are favorable.

THE BACTERIOLOGY OF INFANT DIET MATERIALS

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*New York State Agricultural Experimental Station Bulletins Nos. 153 and 154.

RINGWORM OF THE FEET

One of the biggest problems in public health work that is at the present time interesting college physicians, physical educators, military and industrial organizations, athletic clubs and bathing resorts is epidermomycosis or ring worm. At the University of California, during the fall semester of 1928, when a compulsory physical examination was conducted by Robert T. Legge in collaboration with Lee Bonar and H. J. Templeton, Berkley, California (Journal A. M. A., May 4, 1929), for all freshman entrants, it was found, on carefully searching and examining the toes of 3,105 freshmen, that 52 1-3 percent of the men and 15 1-3 percent of the women were infected with ringworm of the feet. This significant fact is evidence that the incidence of the disease is increasing and that it is very common, having already permeated high schools and secondary schools, wherever gymnasium and bathing facilities exist. From their survey among all upper class men in the University of California, it is safe to estimate that 85 percent of the men who are required to take gymnasium work are infected. The distribution of ringworm infection is nation wide. The University of California draws its student body not only from all over the United States but from the whole world. Many of the students are from India, China and Japan, and it is probable that the fungi may have been imported from these countries. The so-called Hongkong and Shanghai foot is ringworm infection. When scrapings from a patient with ringworm are mounted in from 20 to 30 percent potassium hydroxide and allowed to stand for from two to twenty-four hours, the organisms can be readily found by an experienced observer. It has been found that when these dried and "dead" cultures are replanted they grow

abundantly and renew their activity, a fact illustrating that drying is not lethal, and destroying the spores is persistingly difficult. It has been observed that the chief site of infection among students of the University of California is between the toes, particularly in the third and fourth interdigital spaces, very frequently involving the nails. That it may be transferred to the hands, soles, groin and axillae by the towel in drying the body, after the same towel has been used on the feet, is a point worth noting. The clinical types as observed by Legge et al. are chiefly the sodden interdigital, which is most common, then the vesicular and the eczematoid types. In quite a few instances a mixed infection with bacteria takes place and a lymphangitis and adenitis may be present.

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INFLAMMATION OF THE GALL BLADDER

—
LEROY LONG, M.D.
OKLAHOMA CITY
—

The organ that demands the most attention in connection with inflammatory diseases of the bile tract area is the gall bladder, because it is the organ that bears the brunt of infection. The infection, like infection anywhere, produces inflammation that is circumscribed or extensive; mild or severe.

An inflammatory process terminates in either recovery of the affected area or the death of that area.

Leaving out recovery by delitescence in which there is an evanescent, fleeting, abortive infection, and which on account of its lack of symptoms, can not be identified in the hidden organs, there is left for consideration recovery by "resolution" and recovery by the formation of new tissue.

In recovery of an area involved in an inflammatory process by resolution, the infection is controlled, and the area involved returns to what appears to be a normal state. A typical example is recovery from lobar pneumonia, where, quoting McCallum, "it is rather as though the whole process were taking place upon a mucous surface."

In inflammatory processes involving mucous surfaces alone, recovery is by resolution. This is the so-called catarrhal type of inflammation in which there is hyperemia and oedema of the mucosa and excessive production of mucus.

It is conceivable that there might be a catarrhal inflammation of the bile tract area to a limited extent without involvement of the sub-mucous structures, and that such an inflammation might be followed by a return to a normal condition. So-called catarrhal jaundice still listed by writers on internal medicine seems to be such a process. Catarrhal jaundice is associated with duodenitis and inflammation

of the mucous membrane of the terminal choledochus, with plugging of the opening of the choledochus by mucus.

In the recovery of an inflammation by formation of new tissue, there is fibrosis; there is scarring. But it is well known that pathology disclosed at operation or autopsy shows that an inflamed gall bladder does not always recover. In some cases the infection is vicious, the blood supply is destroyed and there is gangrene, disintegration and rupture. In some cases the cystic duct is obstructed and the gall bladder with inflamed walls is filled with pus. In some cases, there is rupture into the abdomen or a neighboring viscus. In some cases, the acute symptoms have subsided, but there is a slumbering infection.

The conditions said to recover by resolution—so-called catarrhal inflammations—should receive very careful consideration. They should receive careful consideration because of the obvious difficulty in determining clearly whether in a given case there is, or is not a simple catarrh.

We will agree, in order to be fair, that in so-called catarrhal jaundice in the young, associated with very moderate interference with the well being of the patient, the pathology consists in an inflammation of the duodenal mucosa and the mucosa of the pars intestinalis of the choledochus, but when inflammation involves the gall bladder mucosa there is, in my judgment, good reason to believe that it is not simple catarrh.

Ascending infections are, at most, extremely rare. As much as we at one time admired the theory of Gilbert, and, later, Naunyn about descending infections, we must now, in view of the work of Graham and others, regard such infections as rare. Concretely, it seems to have been demonstrated that surface infection of the bile tract area is very uncommon, because it has been shown conclusively that in the average case, the infection is carried to the gall bladder by lymph or blood vessels, and that it begins in the wall beneath

the mucosa. For practical purposes, then, it would seem that so-called catarrhal inflammation of the gall bladder has not been proven. On the contrary, it would seem that it has been proven that in the average case, at least, inflammation of the mucosa is secondary to a sub-mucosal infection.

If the infection is in the sub-mucous tissues, recovery of the area involved, if there is recovery, is by the formation of scar tissue. If there is scar tissue, there is more or less extensive crippling of the gall bladder. Moderate scarring interferes with the ability of the gall bladder to absorb water in the process of concentrating the bile and with the ability to empty itself. If the scarring is extensive, these functions will be destroyed. Not only are the functions crippled or destroyed, but often there are areas of dormant infection, so that the patient not only has a scarred and crippled gall bladder, but a gall bladder that has foci that may be the starting point of acute inflammatory processes later. In addition, such a gall bladder is predisposed to the development of malignant disease.

And there is still another danger—extensive involvement of the entire bile tract through the lymphatic distribution. It has been shown that there is a direct connection between the sentinel gland at the neck of the gall bladder and glands distributed along the choledochus. It is through this lymphatic connection that infection may be carried from the gall bladder area to the tissues about the choledochus, producing a periductile inflammation.

In this way—that is, by the secondary involvement of the choledochus—there may be scarring, contractions and narrowing to the extent that the bile stream in the choledochus is obstructed and jaundice produced, even when no stones are in the duct.

Many years ago, we operated upon a woman about 50 years of age. She came with a pronounced, long-standing jaundice and a history indicative of inflammatory disease of the bile tract area. Pain and digestive disturbances were prominent symptoms. The reasonable conclusion was that there was an obstruction of the choledochus by stone. At operation, there was no evidence of stones in the duct. The gall bladder had been changed into a firm flesh-like mass buried in scar tissue. There

was no demonstrable cavity. The cystic duct was patent for a little over a centimetre. After the removal of the remains of the gall bladder, a small catheter was sutured into the cystic duct.

At that time, I believed that there was a permanent stricture of the choledochus due to extensive and long-standing inflammation of its walls, and it was expected that there would be a permanent biliary fistula, but several weeks after operation there was bile in the feces, and less bile per fistula. Within two months there was no bile per fistula. There was bile in the feces. There had been no return of jaundice. The patient was observed for five years. She was not entirely well during that time. There were intermittent digestive disturbances and occasional distress, but in the main, her condition was a great deal better. There was no return of the jaundice.

In this case, it is possible that a stone was overlooked and that subsequently bile found its way around it, but I do not think so. I believe that the obstruction of choledochus was due to inflammatory narrowing with an associated swollen mucosa. Two things are in favor of this conclusion—the inability to find stone in duct at the time of operation, and the disappearance of the jaundice and improvement of the patient after operation.

If, in the case of this patient, relief did not follow the escape of a stone from choledochus, or the passage of bile around it (a very improbable explanation), what was it that brought about the relief of the jaundice and the improvement of the patient? Was it the drainage of the bile tract area by way of the cystic duct? In my judgment, that would hardly be the sole explanation. I believe that drainage did relieve the oedema of the mucosa, and in that way contributed to improvement, but I do not believe that it was solely responsible. Would it not appear reasonable that in removing the degenerated remains of the gall bladder, a source of infection that kept up a chronic inflammatory process in and about the choledochus by way of the lymphatic connections, was removed?

As I understand it, the following facts, in connection with infections of the bile tract area, have been demonstrated:

1. Simple surface infections of the mucosa—the so-called catarrhal inflammation—are extremely rare.

2. In the average case, the infection

begins in the wall of the gall bladder beneath the mucosa.

3. The most favorable non-operative result that can be expected after the average wall infection is pathologically a more or less extensive fibrosis that modifies or destroys the ability of the gall bladder to empty itself, or to concentrate bile by the absorption of water.

4. The areas of fibrosis in the gall bladder wall have relatively low resisting power, and predispose to subsequent attacks.

5. Infections of the gall bladder, if they do not immediately produce a disaster, commonly become chronic.

6. Infection favors the formation of stones which frequently bring about serious, and too often disastrous pathological conditions.

7. Malignancy of the bile tract area usually follows long standing infection.

Taking these facts into consideration, is it not reasonable to conclude that, other things being equal, the diseased gall bladder should be removed? This conclusion is all the more reasonable when it is remembered that, notwithstanding the functions attributed to it, it is not an organ essential to life or the well-being of the patient.

But other things are not always equal. For example, in acute empyema of the gall bladder with gangerous walls, it is probably not wise to undertake its removal, because of the danger of an overwhelming infection following the necessary dissection. Unfortunately, in just the case where the gall bladder is hopelessly crippled, and where it is a positive menace, we, in the interests of the immediate safety of the patient, have to make a compromise and leave it, depending upon drainage and the protection of adjacent areas by rubber dam or some other appropriate procedure. However, from such a case, we may learn this lesson: *most of the acute and disastrous conditions of the bile tract area come only after former recognizable attacks when appropriate surgical operations for definite relief could have been carried out with relative safety.*

THE MYOCARDIUM

GEORGE A. LA MOTTE, M.D.
OKLAHOMA CITY

THEORY

The myocardium furnishes the motive power for the arterial circulation. The heart is a two cycle force and suction pump that maintains the necessary excess of pressure in the aorta and pulmonary artery. The resiliency and elasticity of the arterial system prolongs the effect of systole by maintaining a steady, equal flow of blood through the capillary beds during diastole. The return of blood and lymph is largely by muscular contractions, changes of posture, and respiratory aspiration. The heart action is synchronized by a neuro muscular conduction system. The sino auricular node (pace maker) is enervated by fibers from the right vagus and the auriculo ventricular node by the left vagus. Various sympathetic and trophic nerves accompany the vessels and play a prominent part in cardiac enervation. The respective sides of the heart pump the same volume of blood, but the pressure in pulmonary circulation is decidedly less than in the systemic. The normal heart operates efficiently without using its reserve force except on occasion, e.g., excessive exercise necessitating the adjustment to changes in intra-cardiac volume or pressure. Increase of intra cardiac pressure stretches the musculature, augments the irritability and contractility, and increases the afferent impulses. Compensatory hypertrophy is initiated to preserve the circulatory equilibrium. Relative decompensation with dilatation supervenes when the reserve force is exhausted and adequate nutrition is lacking for further hypertrophy. The physiological limit is reached when the cavities do not empty in systole. Persistent, passive distention diminishes the tonus, and the volume of the respective cavities increase *pari passu* with necessity, but hypertrophy with dilatation attempts to further adjust a defective pump to a certain load.

The clinical questions that arise, must invariably center around the integrity of the myocardium and the urgency of the circulatory demands. I believe it is generally conceded that myocardial deficiency regardless of its pathogenesis produces identical clinical syndromes, and the variety or the extent of the pathology is not so material as its particular location. In-

flammation, degeneration, thrombi and reparative processes may co-exist, and cardiac fatalities have occurred without demonstrable gross post-mortem findings. Myocardial changes are not primary but invariably secondary to infections, intoxications, nutritional changes or mechanical defects.

Probably existence of myocardial pathology is an inference based on the clinical evidence of cardiac insufficiency, and to regard myocardial change as a disease is undesirable.

SYMPTOMS

Early symptoms are vague. Noticeable fatigue under the usual circumstances of living, or exhaustion greatly aggravated by any additional physical, mental or emotional exertion. Unexplainable indigestion may occur but is more related to over exertion than over indulgence of the table. Irritability, poor memory, or vertigo and emotional depression; various gradations of dyspnoea, with a tendency to lividity. Unusual increase in pulse rate on slight exercise. Slight evidence of edema of dependent type. Substernal pain or arrhythmia.

The various types present an unusual kaleidoscope panorama:

(a) Congenital lesions: An intermixture of venous and arterial blood with cyanosis, increased red count and clubbed fingers.

(b) Rheumatic, chorea and tonsillitis group: present a history of infection and secondary endocarditis—look anemic and have high leukocytosis in febrile stage; with few subjective or objective symptoms save murmurs and septic phenomena, but are potentially dangerous because of the co-existing myocardial infiltration and valvular defects.

(c) Syphilitic—otherwise vigorous adults, without definite rheumatic history or preceding hypertension, insiduously develop substernal discomfort—referred pains—cardiac hypertrophy and Corrigan pulse.

(d) Hypertension—The common cardio-renal vascular group of the fourth to sixth decade is either accidentally recognized and without subjective symptoms, or per chance discovered in the pangs of angina pectoris vera presenting a statue like position and ashen facies. Or those eventually destined to become dyspnoeic, cyanotic and edematous, without exertion,

(e) Degenerations of involution—ordinarily present excessive omental fat, a moist eye and an unsteady hand—atheromatous vessels—a relatively low blood pressure—arrhythmias, aversion to new adventures, a narrow outlook, obtunded memory and a persistent tendency to reminisce.

PHYSICAL SIGNS

Physical signs are most material in differentiating functional disturbances from definite organic diseases. Medical judgment depends primarily on accuracy of observation and common sense; secondarily on academic knowledge and intuition.

(a) Inspection, with patient stripped and good light, first survey the contour, thinking deformity from tumors, effusions, adhesions or rib angulation. Locate the apex, realizing displacement occurs in hypertrophy, dilatation, effusions or adhesions with lung retraction. The impulse is accentuated by goiter-neuroses, drugs or hypertrophy, and made less prominent from dilatation, effusions or edema of chest. The epigastrium pulsates, various tachycardias, aneurysm, tumors or stasis, e.g., liver, dilated right ventricle. Observe veins of the neck. Do they fill from above or below or pulsate at different rate from the apex beat?

(b) Palpation is used to confirm inspection—identifies friction rubs and discovers thrills.

(c) Percussion is largely a habit; gives less information here than elsewhere and is more or less valueless unless corroborated by the X-ray.

(d) Auscultation is valuable when based on a knowledge of normal tones. It is our most practical index concerning progressive changes that augur improvement or an advancing pathology. I desire at this time to dismiss valvular and functional murmurs with one statement, viz: Systolic murmurs accompanied by a thrill or diastolic murmurs are significant of structural changes in the heart or great vessels. The first sound (systolic) becomes relatively shorter and more snappy in character with myocardial damage. When it is scarcely distinguishable from the second sound (embryocardia—tic tac rythm) muscular tonus is at a low ebb.

By simultaneously palpating the carotid artery we readily recognize pulse deficit—extra systoles and pulsus alterans. An irregular irregularity identifies auricular

fibrillation, perhaps the most common and dreaded late complication or stage of myocardial disease.

Accentuation of the second aortic signifies abnormal arterial tension due to hypertrophy with hypertension pathology. Accentuation of the second pulmonic means obstruction of, or a reflux of blood in the pulmonary circulation. Should this sound become less marked, failure of the right ventricle is a rational inference, while reduplication bespeaks unequal tension in the auricles and is a doubly grave omen, if existing pulmonary pathology be the exciting cause.

CORROBORATION BY INSTRUMENTS OF PRECISION

Sphygmomanometer—During compensation, the systolic pressure measures the arterial tension necessary to successfully combat existing circulatory defects. Disproportionate high diastolic pressure is an added burden, inasmuch as the pulse pressure represents all the potential energy passed into the arteries by each cardiac cycle. Many factors produce fluctuations in blood pressure, but clinically the relative time consumed in re-adjustment after exercise seems to be proportional to the degree of cardiac fatigue. Persistent low systolic following a prolonged high pressure is significant of grave changes in the myocardium provided the subjective and objective symptoms become more manifest.

Congestion raises the venous pressure which theoretically at least precedes arterial hypertension. Normally all veins should appear empty in the recumbent position; when elevated, above the sternoclavicular junction.

Electrocardiograph—It does not serve as an index to specific myocardial pathology, but an electrocardiogram is decidedly of more than academic interest in testing the neuro-muscular conduction apparatus. It is capable of furnishing warning of probable myocardial damage by registering the variety and degree of cardiac block. Identifies the arrhythmia and on occasion might profitably be the deciding factor in questionable surgical risks. The records are serviceable for comparison in estimating progress of your case. It is a refinement in laboratory procedure, comparable to the value of the X-ray in incipient, pulmonary tuberculosis, since both are only capable of rendering service to

the patient commensurate with the correctness of their reading.

PROGNOSIS

Experience teaches caution; the probable duration, or ultimate outcome is always uncertain. The functional status of the myocardium may be estimated by various exercise tolerance tests:

(a) Ability of holding breath. Note time consumed.

(b) Increased pulse rate should not be over 20 per minute on assuming the upright position in cases convalescing from infectious processes, e.g., diphtheria.

(c) Unusual fatigue experienced following regular duties.

(d) Moderate exercise increases the pulse rate, but it should not continue at over four per minute extra, after a two minute rest.

(e) More prolonged exercise in grave cases may tend to slow the rate and register a fall of blood pressure.

Numerous other standards are advocated but they of necessity are all relative and depend on the personal equation of both the patient and physician.

If we always remember that myocardial changes are secondary and not a disease entity, then look carefully into the existence of correlated and co-existent pathology along with laboratory evidences of functional disturbances, the more likely we will interpret findings correctly, and thus be in a position to advise rational management.

PROPHYLAXIS

Prophylaxis rests largely with better education of both the profession and the public. Periodic health examinations, supervised, preferably, by competent general practitioners instead of clinics. The supplying of an opinion is valuable only in proportion to its being understood and followed upon rational lines. Distant clinics may use excellent scientific methods for diagnosis, but after all, unless the individual has a physician conversant with their living conditions and interested personally in their problems, the chances of successfully negotiating the detour is doubtful. Present medical knowledge fails in its general application and maximum benefits, largely because the practice is already over-specialized and as a result, what has unnecessarily become group bus-

iness, is as a matter of fact, no one's direct responsibility.

TREATMENT

There is no specific, combination of remedies or plan that will always forestall death. The ideal method is an endeavor to conserve the cardiac reserve. Avoid unnecessary exposure to infection. Take the time to educate your patients who possess potential possibilities and show a kindly interest by intelligent co-operation. Endeavor to inactivate the causeless wear and tear; secure sufficient sleep, insist on ideal hygiene, proper nourishment and adequate elimination. Maintain peace of mind and stimulate the will to live. Zealously watch your convalescents, graduate their exercise, and exhibit proper tonics on occasion. Trying to fight against the limitations fixed by dyspnoea or palpitation, is to court disaster. In short, the speed limit is being exceeded.

Drug therapy is a debatable subject. clinicians have taught and untaught the use of various stimulants. The safest course is to follow the consensus of opinion, but be consistent with physiological teaching. Stimulation must be through the sympathetic system and inhibition by virtue of the vagus. The respiratory center is regulated largely by the CO₂ content of the blood. Caffeine sodium benzoate is the most potent emergency remedy. The respiratory muscles are also stimulated by strychnine and possibly alcohol. The vasomotor center is stimulated both chemically and reflexly.

Hydrotherapy is the most reliable vasomotor tonic, but adrenalin or pituitrin are excellent emergency remedies.

The cardio inhibitory center functions altogether through reflex stimulation, but atropine will paralyze the nerve endings, and pilocarpine stimulates.

In functional disturbances like palpitation we usually apply the ice bag exhibit NH₄Br and carminatives, and are careful of the psychology, e.g., neurocirculatory asthenia.

Digitalis is dependable in decompensation regardless of the etiology, by slowing the rate, rest is secured and better nutrition results. By interfering with conduction, heart block may result. If the pulse rate falls to seventy per minute, it should be discontinued. Gastro-intestinal disturbances and lessened urinary output are toxic effects.

Quinidine sulphate depresses all cardiac functions and for this reason may be desirable, but only when the patient can be closely watched. Toxic action increases the ventricular rate. It is contra-indicated in congestive cases and where suspicion of emboli exists, e.g., hemoptysis or pleurisy, because if the irregularity suddenly ceases, the resultant stronger systolic action may readily dislodge cardiac thrombi.

Morphine depresses the medullary centers and the reflex arcs. It allays the effect of excessive stimulation and by securing sleep, over-balances the theoretical evils. In fact, loss of sleep kills more rapidly than starvation. Intravenous glucose is ideal in starvation acidosis.

Paraldehyde is the least depressing hypnotic, but chloral hydrate, bromides and barbitol may be necessary.

Nitrate groups are desirable symptomatic remedies for anginal pain, or cardiac asthma, but have a fleeting action, and are not to be classified as curative remedies.

Special symptoms are treated along rational lines according to their etiology and with due cognizance of the individual's peculiarities and particular needs: e.g., carefully consider his emotions, sub-conscious fear, or any temperamental over-acute sensation.

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ARTHRITIS AND RHEUMATOID CONDITIONS

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Arthritis is a diseased condition characterized by disability and structural changes in one or more joints. It has been the cause of suffering in man from time immemorial. It was the disease par excellence of the Egyptians.

Today it is one of the great scourges of society. This is well exemplified by the great number of institutions and cures for the treatment of this disease that are scattered throughout the world. This disease occurs from youth to old age, and has been classified by Cecil into the acute arthritis which includes the infectious and non-infectious; chronic arthritis which includes the infectious or proliferative type, and the degenerative or osteo-arthritis,

the metabolic type, the mixed forms of chronic arthritis and spondylitis.

The extent of arthritis, and the prominence it assumes as an economic problem is just beginning to be appreciated. The medical profession of twenty-four countries, including the United States have lent their support through the co-operation of representative men in the study of rheumatism being carried out by the international committee on rheumatism, their headquarters being at New Amsterdam. England, France, Sweden, Holland, and America have been especially interested in this problem.

In America this intensive attack upon the problem of arthritis is being lead by Dr. Louis B. Wilson, director of Mayo foundation who is assisted by a great number of leaders in our profession. In Sweden, Dr. Ellen Persson states that 20 percent of the invalid cases under sixty years of age are referable to arthritis, as against 9 percent due to tuberculosis. In England the British Ministry of Health reports that rheumatism causes nearly one-sixth of the total industrial disability, with an estimated expenditure of two million pounds for sick benefit, and a loss of three million weeks of work. In Germany Dr. Arnold Zimmer of the University Surgical Clinic in Berlin, states that there are 8.2 times as many cases of rheumatism of joints and muscles as tubercular infections; 3.4 times as many days of illness, and 1.4 as much invalidism.

In the study of arthritis in the army it was found ten times as frequent as diabetes. Similar evidence of a growing appreciation of the problem could be multiplied. This suffices to point out the importance of the disease of articular and nonarticular rheumatism as a major economic problem in the working class today.

There is a growing tendency among the laymen to assume that all disability is due or related to trauma, and that diseased process have no bearing upon their physical assets.

The two great classes into which adult chronic arthritis is conveniently divided is not entirely satisfactory, but at the present state of our knowledge it is the best scientific classification that we could expect. The atrophic, proliferative, or rheumatoid on one hand, and the hypertrophic or degenerative type on the other gives us a good working plan on which to make a diagnosis, although we realize that there

is a certain over-lapping in both of these types.

The frequent recourse to X-ray examination, especially that of the spine, has been of especial enlightenment to us, as to the great frequency of arthritis in the spine. As result of the X-ray evidence we have been impressed with the increasing number of cases of arthritis of the spine in younger adults. Many of this latter class may be wholly unaware of any disease of the spine, and if found after minor injury to the back it is too often assessed to trauma, the disease having been present but unrecognized before the purported strain. Some employers realizing the frequency and seriousness of this condition have demanded an X-ray of the back of every employee before permitting them to enter their service.

In the routine examination of industrial cases, who make claim for compensation, one is frequently confronted with a problem of arthritis. Probably the hardest nuts to crack are the spondylarthritis that occur in workmen that have sustained an injury and the X-ray of the spine presents an array of calcified ligaments, spur formation, and osteoarthritis, that originated months and years previously. The patient maintaining that the foci of infection, age, and existing pathology have no bearing on his symptoms.

Other joints besides the spine are frequent sources of medico-legal interest. I will briefly summarize two of these latter type. I think that they emphasize the importance of bearing in mind the relationship of disease as well as that of trauma to arthritis. This honest differentiation is as I see it, part of the physician's duty and should not be assumed by the layman.

CASE REPORTS

Case 1—Male, 45 years of age, whose previous history was irrelevant. While pursuing the usual labor of a workman he noticed a pain in his left wrist. He states that he does not know of any injury that he sustained, but his wrist began to pain him, and that he must have hurt it. He was seen twenty-four hours after the pain began, and his left lower forearm, wrist, and hand were swollen, painful to movement or palpation, temperature 101, and the distress in the wrist was quite marked. Examination showed a marked infection of his gums and several carious teeth. He was told that his disability was due to an inflammatory rheumatoid condition and

was not of a traumatic nature. He was sent to a dentist who extracted several teeth and treated his oral sepsis. His disability gradually cleared up and left him with 20 to 25 percent impairment of function of the joint. X-ray of the joint was negative as to bony lesion. He applied to the Industrial Commission for an award for his disability and on the evidence such as I have given above was awarded six hundred seventy-seven dollars.

Case 2—Male, 31 years; patient states that while lifting, his hand slipped off of the article he was holding and he felt pain in his wrist. He stated that he had had a urethral discharge for ten days previous to the accident. Rectal examination showed a distended right vesicle and examination of the discharge showed numerous intracellular and extracellular gram negative diplococci. When seen a year later, he had an ankylosed wrist with full function of the fingers. The history and physical examination impressed me as being a pure type of a Neisserian arthritis. I was unable to visualize any evidence of trauma in his disability. X-ray was negative as to bony lesion. He appealed to the Industrial Commission for an award for his disability, attributing it as result of trauma and is at present under consideration.

The problem of arthritis not only includes the study of the etiology and the treatment of arthritis, but also the education of the layman in regard to the cause and frequency of it.

THE STANDARD TREATMENT OF FRACTURES

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The treatment of fractures is a phase of the physician's practice in which the remuneration is comparatively small, and the hazard to his reputation is great, yet a responsibility in which it is not expedient for him to avoid.

The great increase of insurance claims and the settlement of industrial claims before the industrial commission have been predominating factors in the exposing of unfavorable results in fracture cases. In a great many instances there seems to be an attitude of indifference and failure to follow principles of treatment that have been proven of standard effectiveness. No longer is it possible to mask bad results

and it behooves one who cares for fractures to qualify himself just as thoroughly in this work as he would prepare for major surgery. Shortening, deformity, and ankylosis are now measured in dollars and cents, in claims of definite amounts through hearings open to the public.

Satisfactory final results can be obtained only through careful preparation and equipment necessary for the care of such cases, and through persistent, almost constant attention to mechanical details. Splinting must be efficiently and effectively applied and maintained. Thorough knowledge of what is satisfactory reduction of fragments and what is unsatisfactory is very essential. Relentless after-care must be provided and the case kept under observation until there is unquestionably solid, bony union.

A majority of fracture cases are comparatively simple and results are obtained with little effort. Sooner or later, however, the case arises which results in grief and no amount of remuneration can pay for the anxiety and unappreciated efforts of the physician.

There is no mediocre standard for treating fractures. Perfect restoration of alignment, apposition and function cannot always be obtained. However, he who expects to assume the responsibility of treating fractures should know the prognosis of fracture cases and their complications and fully be aware of the limitations and disappointments that are likely to arise under various circumstances.

The first essential is to have an intelligent working knowledge of the case in hand. X-ray should be used in all cases. The guiding principle in the treatment of fractures should be to restore anatomical relationship as nearly as possible by whatever means that seem most effective, checking the alignment and apposition frequently by means of the X-ray. There are no fixed rules because the same conditions seldom arise in cases of the same nature. Standard general principles, however, have been evolved in regard to splinting and position of parts and these standards have become so well established that to omit or disregard them is considered a reflection upon one's intelligence and ability as a surgeon. Much of the material on fractures in text books, of ten years past, is obsolete and should be dis-

regarded. The latest text books on fractures are reliable.

Some of the more important standard rules are outlined here:

FRACTURE OF NECK OF HUMERUS

1. Use X-ray at once definitely to distinguish between dislocation and fracture and to determine position and nature of fracture.

2. Reduce as early as possible. Do not wait for swelling to go down.

3. Two methods may be used:

a. *Without anesthetic.* Place in bed and apply overhead suspension. Place extension on elbow in horizontal plane of body with shoulder in full abduction and with the elbow flexed and suspended by traction in vertical position.

b. *With anesthetic.* Reduce under fluoroscope, apply plaster cast with arm in full abduction and elbow at right angle. In some cases external rotation of humerus will be necessary. Abduction splints may be used instead of cast but fixation is not so satisfactory.

4. Position of fragments must be inspected by fluoroscope or X-ray. After two weeks their position cannot be changed.

5. The abducted position should be retained for at least four or five weeks. Relaxation sooner will cause change of position and limitation of abduction because of adhesions.

6. Massage to the shoulder is of great aid and should be started on the fifth day if not in cast. When cast is removed, massage and passive motion is of great aid.

COMPLICATIONS

1. Fracture may be accompanied by dislocation. Failure to reduce dislocation produces severe disability. Anesthetic is necessary to reduction. Treatment is then the same as for fracture.

2. Paralysis of circumflex nerve occasionally occurs and produces severe permanent disability if arm not retained in abduction until function of deltoid returns.

3. Treatment with arm to the side is

likely to produce permanent disability of limitation of abduction and rotation.

4. Improperly applied splints may press upon the musculo-spiral at ulnar nerves and produce paralysis of severe nature.

FRACTURE NECK OF FEMUR

Use X-ray to determine whether intra-capsular through neck or extra-capsular through base of neck and intertrochanteric.

a. *Intra-capsular.*

1. If of strong vitality and under 65 use anesthetic, reduction and apply plaster spica from axilla to toes on injured side and down to knee of well leg. Position should be full abduction, extension and internal rotation as described by Whitman. Immobilize 12 to 15 weeks. Weight bearing after 6 to 8 months.

2. Over age 65 or where feeble give no anesthetic. Use traction with leg in abduction extension and internal rotation. (An especially designed traction frame is used at the Reconstruction Hospital, but the Ruth method or overhead extension is very efficient.

b. *Extra-capsular.*

1. If of strong vitality give anesthetic, reduce and apply plaster spica from axilla to toes in position of slight abduction. Immobilize 8 weeks, allow weight bearing 4 to 6 months.

2. If feeble give no anesthetic and apply traction with leg in slight abduction.

COMPLICATIONS

1. Non-union occurs from insufficient and too short a period of immobilization.

2. Abduction deformity is very disabling because of functional shortening. Fixation in full abduction prevents this.

3. Stiffness of knee is disabling and can be prevented by using efficient traction and suspension method instead of plaster.

COLLES FRACTURE

1. Use X-ray to determine extent of deformity and displacement. Make certain that X-ray is made exactly in lateral and antero-posterior planes.

2. Always use anesthetic.

3. Reduce thoroughly so that articular face of radius points slightly downward and forward of the axis of the shaft.

4. Use molded plaster splints from elbow to knuckles with wrist in flexion and abduction to ulnar side.

5. Use X-ray after reduction.

6. Start massage at end of 10 days.

7. Remove splints in two to three weeks.

SUPRA CONDYLAR FRACTURE OF ELBOW
IN CHILDREN

1. Use X-ray in lateral and antero-posterior position to determine displacement.

2. Always use anesthetic.

3. Reduce thoroughly. Exaggerate deformity, push lower fragments forcibly downward and while traction is being made on forearm, force lower fragment forward and at same time have assistant bring the forearm into acute flexion.

4. Check reduction with exact lateral X-ray views of humerus. Nothing short of complete reduction is satisfactory.

5. Bandage in acute flexion but not too tightly. Be certain to see the case daily for the first three or four days and if circulation is badly impeded, loosen bandage and relax flexion cautiously. Use heat constantly, also massage.

6. Bring forearm to right angle at the end of 18 days.

7. Start function and forced motion after three weeks.

POTT'S FRACTURE

1. X-ray to determine posterior and lateral displacement. Do not mistake for inversion fracture of inner malleolus.

2. Always use anesthetic.

3. Reduce by forcing foot forward and inward.

4. Check reduction with lateral and antero-posterior views. Normal alignment must be accurately obtained.

5. Apply plaster from toes to above

knee. Foot inverted inward and fully dorsiflexed.

6. Bivalve cast and start massage at the end of two weeks. Allow weight bearing at end of three weeks.

FEMUR

1. X-ray lateral and antero-posterior position.

2. Use anesthetic. Reduce completely and apply plaster spica if fracture is transverse and if fragments will become firmly engaged end to end.

3. Apply traction with or without anesthetic. Thomas splint, plaster trough, or ice tongs may be used. The ice-tong method is usually the more efficient.

4. Open operation is very seldom necessary in adults. It is very rarely necessary in children under 15 years old.

5. Retain traction four to five weeks. Retain fixation nine to twelve weeks.

6. Apply walking caliper at end of twelve weeks and retain until union is unquestionably firm.

WHAT IS CONSIDERED GOOD REDUCTION OF
A FRACTURE: PROGNOSIS

I. FEMUR.

a. Childhood under 14.

1. One inch overlapping will regenerate to normal length in two years.

a. Bowing is likely to remain permanent.

b. Infection from compound fracture usually clears up promptly with adequate drainage.

2. Neck of femur must obtain complete reduction in extreme abduction and internal rotation.

3. Condyles: Obtain complete reduction and alignment on account of interference of weight bearing.

b. Adults.

1. Shaft

a. Over one-half inch shortening produces a permanently noticeable limp. One inch is not severely crippling; two inches gives severe permanent disability.

b. Bowing will remain permanent.

- c. Rotation deformity produces faulty weight bearing.
- d. Infection from compound fractures may result in non-union and persistent chronic osteomyelitis.
- e. Non-union may occur from frequent adjustment of fragments.

2. Neck of femur:

- a. Intra-capsular. Contour and normal angle of neck must be restored, otherwise non-union and shortening will produce severe permanent disability.
- b. Intertrochanteric. Union will occur even when poorly reduced. Severe permanent disability follows poor alignment.

3. Condyles. Obtain complete reduction and alignment on account of interference of weight bearing.

II. HUMERUS:

a. *Childhood.*

1. Shaft.

- a. One inch overlapping will produce no permanent disability or shortening, unless it involves the musculo-spiral nerve.
- b. Bowing will usually correct itself.
- c. Infection usually clears up promptly with adequate drainage.
- d. Non-union may occur from frequent adjustment of fragments.

2. Surgical Neck.

- a. Poor alignment does not greatly impair function.

3. Condyles.

- a. Very slight misplacement of fragments produces permanent disability and deformity.
- b. Stiffness for three to six months follows even well reduced fractures of elbow joints in children, but ultimately complete function returns.

- c. Ulnar nerve complication is serious.

- d. Ischemic paralysis is severely crippling.

b. *Adults.*

1. Shaft.

- a. One inch overlapping will not interfere greatly with function unless it involves the musculo-spiral nerve.
- b. Bowing will remain permanent.
- c. Infections may result in non-union and many years of osteomyelitis.
- d. Deformity may occur if not protected by bracing for several weeks

2. Surgical neck.

- a. Improper alignment and incomplete reduction greatly impair function.
- b. Circumflex nerve paralysis results in serious disability from loss of abduction.
- c. Fracture of tuberosity and rupture of capsule and supraspinatus muscle results in loss of abduction and persistent pain in the shoulder.

3. Condyles.

- a. Permanent stiffness of some degree always follows fracture into the elbow joint of an adult, even when well reduced.
- b. Perfect reduction must be obtained even if open reduction is necessary.
- c. Ulnar nerve paralysis is a serious complication.

III FOREARM:

1. Shaft.

- a. One inch overlapping produces very little impairment of function if the bones are well healed while in full supination.
- b. Bowing is permanent and interferes greatly with function of flexors and extensors.
- c. Union of fragments while held in semi-pronation re-

sults in permanent loss of function and strength.

- d. Non-union may occur from frequent adjustment of fragments.

2. Olecranon process. Disability will follow, unless completely reduced.

3. Head of radius. Permanent disability will occur unless well reduced. Poor reduction is preferable to removal in children. Removal in adults preferable to poor reduction, as comparatively little loss of function results.

IV. WRIST:

- a. Colles fracture must be thoroughly reduced and normal alignment restored, otherwise permanent weakness and unsightly deformity will result.
- b. In adults splinting for more than three weeks may result in permanent stiffness of the hand and fingers.
- c. In children, fractures near the wrist do not result in permanent disability, unless reduction is usually incomplete.

V. LOWER LEG:

1. Shaft.

- a. One inch of shortening produces permanent limp. Under one inch is not severely crippling. Two inch shortening produces severe permanent disability.
- b. Bowing will remain permanent in children or adults.
- c. Infections may result in non-union and persistent chronic osteomyelitis.
- d. Non-union may result from frequent adjustment of fragments.

2. Upper End to Tibia.

- a. Poor alignment will result in faulty weight bearing.
- b. Fractures into knee joint usually leave permanent limitation of motion.

3. Crucial Tubercle.

- a. If thoroughly reduced will unite and with no permanent disability.
- b. If unreduced, better be removed.

4. Lower end.

- a. Must be thoroughly reduced and normal alignment restored, otherwise faulty weight bearing will be greatly disabling.
- b. Splinting for more than six weeks may produce severe osteoporosis of foot bones and prolonged disability.

COMMON ERRORS AND IMPROPER PROCEDURE IN TREATMENT OF FRACTURES

1. Failure fully to reduce and maintain apposition and alignment.
2. Splints or cast applied too short for fractures of shaft; splint joint above and below.
3. Frequent manipulation and changing of splints or cast. Constant traction should be used if there is a tendency to shortening.
4. Cast or splints too tight. Interference with capillary circulation for twenty-four hours will often produce persistent pain and perhaps ischemic paralysis.
5. Cast or splints applied without regard for position of joint.
6. Splinting of joints over too long a period of time.
7. Removal of splints without fully determining firm union.
8. Frequent meddling with wound in compound fractures. These can often be thoroughly cleansed with iodine and alcohol, sutured and treated as simple fractures.
9. Plating of compound fractures. This should never be done.
10. Plating of simple fractures under questionable aseptic operating room technique.

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THE MEDICAL TREATMENT OF FRACTURES

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Complete surgical reduction of a fracture does not always insure prompt and satisfactory results. Thorough physical examinations and laboratory study of the patient are necessary and important, in order that any evidence of disease or constitutional weakness which is present be ascertained and corrected as far as possi-

ble, because they influence the character and rate of physiological repair of the damaged parts.

Prompt and thorough treatment of constitutional conditions found to be present will often shorten the disability period by preventing such complications as:

1. Fibrositis and ankylosis
2. Neuritis
3. Synovitis
4. Traumatic arthritis
5. Delayed or non-union

Diseased states that, when present, tend to lengthen the period of disability are:

1. Focal infection
2. Diabetes
3. General syphilis
4. Syphilis of the nervous system, especially *Tabes Dorsalis*
5. Malaria
6. Endocrine disturbances
7. Arterio sclerosis
8. Anemia
9. Tuberculosis
10. Affections of the genito urinary tract

Another factor to be seriously considered is that of diet. It is most important in the hospital case, in that there is a radical change in the patient's daily habits, activities and food which causes a physiologic reaction that affects healing of fractured bones.

His diet should furnish him an adequate amount of:

1. Mineral containing foods
2. Vitamins
3. Fluids
4. Proteins
5. Starches
6. Fats
7. Alkaline ash foods
8. Residue to prevent constipation

Milk products, residue containing cereals and bread, orange and lemon juices, salads of raw fruit and vegetables, green vegetables and rare steaks should be the basis of the diet.

In addition to the diet, as much sunlight as possible should be allowed the patient. Especially prepared cod liver oil super-fortified with vitamin D should be administered daily.

Treatment of the diseased states mentioned above is well known. Elimination of foci of infection and intensive treatment of rheumatic tendencies is very important. The urine is often an important guide to the patient's general condition.

A trace of sugar should excite prompt attention to the diet. Indican also calls for dietetic regulation. A Wassermann should be taken routinely in all fracture cases. When positive, iodides, arsphenamine, bismuth and mercury must be administered in the most effective manner. Malaria is not uncommon and should receive the proper dose of quinine. The basal metabolism often indicates endocrine disturbance and glandular medication is helpful. For anemia the ingestion of liver and administration of iron and sodium caccodylate intramuscularly or by vein will serve to reduce or entirely remove the ill effects of this disease. Arteriosclerosis can often be retarded and improved by appropriate physiotherapy, iodides, the substitution of meats by milk and buttermilk and careful attention to the emunctories. Tuberculosis requires the maximum amount of rest, fresh air, and proper diet as set forth above.

DELAYED OR NON-UNION

In some cases, even though the patient has been properly treated medically and surgically, the fracture fails to heal. In these an altered blood chemistry is often found to be the causative factor.

Work done by various investigators has demonstrated that for fractures to unite actively the calcium and phosphorous content of the blood should contain 10.1 and 3.7 mgm. respectively per 100 cc. of blood. Their product should range between 35 and 40. Vitamin D should be supplied in the diet and by the administration of cod liver oil.

The medical regime set forth below is therefore advisable for delayed union cases:

1. High protein diet
2. Buttermilk, one pint daily
3. Orange juice daily
4. Calf's liver, three ounces thrice a week
5. Calcium carbonate grams three daily
6. Cod liver oil
7. Yellow phosphorous gr. 1/100 twice a day when non-union is especially refractory

The full beneficial effect of this treatment does not manifest itself for three weeks following its institution.

In order to secure a high protein diet the evening meal should contain meats in the form of liver, kidney, pancreas, brain, lung, heart or fish.

DIAGNOSTIC DISCREPANCIES*

ROY L. COCHRAN, M.D.
CADDO

Perhaps a president's address should not be too pointedly directed towards those subjects which are properly a part of the scientific program in a medical meeting but it seems to me that a judicious selection of the matter to be presented is fraught with considerable possibilities for the good of the society and the impression its membership should make on a discerning public. It is admitted that the public is far too inconsiderate in many ways concerning the work the physician does, both in the field of scientific accomplishment, and in the realm where the healing art is divested of pure science. In our efforts to keep abreast with the most recent advances in our profession we endeavor to give our patients a multiplicity of methods in diagnoses and treatments. This is well. We owe it to ourselves as physicians and even more so are we obligated to the individuals who come to us for help. To give them our best is poor enough. We should spare no means in our efforts to determine the nature and the extent of the pathology confronting us, the functional derangement presented, or the casual component, and the clinical whole in each type of patient with a disorder of any kind. Notwithstanding our varied means of investigation and observation and in spite of our most careful consideration of all the probable factors entering into the problem of correct diagnosis, we too often fail to find out just what is the matter with a patient.

Different authorities give various reports on the correctness of diagnoses in institutions where records are kept and autopsies are done. These records of our failures are available to the entire profession; it is a major problem calling for our own consideration and earnest effort. In this particular section of our state I have made a comparative study of a small number of patients. It is strikingly apparent that there must be some glaring lack of diagnostic acumen when a patient who has been seen by six different physi-

cians all of whom belong to their respective county societies, has six different diseases assigned as the trouble. A second patient had five different diagnoses after consulting five different physicians who are representative men of the profession. In all the patients the pathology remains constant, the history is essentially faithfully given, and the symptoms fairly constant, yet the patient has a number of different disease entities assigned as the trouble. A satisfactory diagnosis to the physician should accord with reality, and later be confirmed with a degree of certainty in observing the progress of the case and the response to treatment. It should rightfully implicate all the data available from an examination of the patient, and the deductions arrived at in an appropriate plan of treatment. Furthermore it should involve with scrupulous exactness the very methods of reasoning which we all use too carelessly.

The four cardinal methods of physical examination are still as important and as fruitful of results in arriving at the "thing" that is the matter with the patient as they were a decade ago. A failure to use them in our examinations has shown a relative lack of importance from the viewpoint of the patient in favor of laboratory methods which is in my opinion due largely to our own indifference. This indifference has resulted in a steady drift of the sick to clinics in the larger centers of population. Or perhaps the patient becomes a devotee of some fad, or becomes the noisy exponent of some method of quackery.

Could we not profitably make a more careful study of the patient as an individual, give him a more thorough physical examination, elicit a more detailed group of symptoms, and more thoroughly investigate all the clinical assets of his case? In so doing we would be progressing towards an ideal which is certainly the basis of all logical and methodical treatment—a correct diagnosis. This progress would bring to the profession additional financial returns, sustain and increase public confidence in the physician, promote professional good feelings, and enlarge our sphere of usefulness and service.

*President's address, Southeastern Oklahoma Medical Association. Read at McAlester.

THE PUS APPENDIX ITS TREATMENT AND AFTER CARE*

J. I. HOLLINGSWORTH, M.D.
WAURIKA

Mr. President, and Gentlemen:

You will wonder, no doubt, as to what I might add to the already worn out subject of pus conditions around the appendix, with its allied complications and rather appalling death rate. But I find very little in the text books or medical journals that gives one a very intimate insight into the management of a condition of this kind. About all they tell you is open and drain. Some say leave the appendix until another time, others say remove it by all means, and that about covers the subject.

Being situated in a community where the people are not educated to having surgical interference, and the doctors in some instances might tell them it might clear up this time, and not impress upon them the gravity of the situation, it falls to my lot then, to operate more of these conditions where pus has formed as to percentage of cases than those in larger centers where not only the doctors but the people appreciate the necessity of early interference.

I shall not take up your time in the diagnosis of these conditions, neither will I bore you with lengthy quotations, but rather wholly limit myself to the operation and after-care of the pus appendix and its complications as treated by us in the Waurika hospital.

In the first place we are confronted with a patient sick from four to ten days, usually dehydrated, suffering from acidosis, vomiting, with more or less shock from toxemia and pain. Pulse rapid, increased W.B.C., with a pronounced leukocytosis, lessened kidney output; in other words a poisoned patient from his own fluids.

If time permits we try to balance the fluidity of the body before operation. If not immediately after, before, we give fifty to seventy-five c.c.s of glucose intravenously, hypertonic salt solution either by hyperdermoclysis, proctoclysis, intravenous or by mouth. After, on the table, before the patient awakens, we use one

quart of from one, two or three percent salt solution with five percent glucose per rectum which is very rarely expelled and assists very materially in the patient's well-being immediately following operation by eliminating post-operative thirst as well as combatting shock. Little fluids are given by mouth the first twenty-four hours and that usually being warm water. It seems to be poorly taken up and only balloons up the stomach and adds to the discomfort of the patient as well as assists in the production of an angulation or ileus necessitating repeated lavages (which should be done in these conditions) should the condition be satisfactory. We then give orange juice sweetened with glucose and water, only, the first three days, with on and off proctoclysis during the whole time, especially if the patient is moribund, or too young to appreciate his condition, which also eliminates, in most cases, the necessity of a purge the first few days. It is necessary to make a longer incision than in the clean cases, for the application of proper drainage, the placing of which is of as much importance as any other step in the operation.

The placement of the mesenteric attachments of the small intestines to the posterior abdominal wall are such that, given conditions necessitate different placements of drainage. For instance, a case with free pus in the abdominal cavity, not walled off, one must not only drain the pelvis, the retrocecal fossa, the fossa to the right of the ascending colon, but must push the small intestines to the left of the ascending colon and place a drain here, as the mesentery of the ileum partially walls this off from the pelvic cavity. and with this and Fowler's position we not only drain the upper abdomen potent in absorbent possibilities, but carry the septic material to the pelvis much less susceptible to infection and absorption.

Just sticking a drain of any size, or at any place, does not drain the cavity, and remember the size and number has all to do with the proper elimination of the infection. I use cigarette drains exclusively and of various lengths and sizes. Cases that are walled off from the free abdominal cavity should be packed full of these drains and not removed in from three to five days and then packed with gauze strips. The use of ether, mercurochrome, metaphen or hexylresorcinol is left to the judgment of the champions of these rem-

*Read before the Southern Oklahoma Medical Society, Duncan, December 19, 1929.

edies. I have used them all and find one about as good as another.

Here a condition arises—that of a fistulous opening in from one to five days after operation. The size, location and condition of the bowel giving one some idea as to its ultimate outcome. If the opening is on the under-side of the colon or outer-side, it will probably close itself, but if near the ileocecal valve, on top or end of the colon, it is less likely to close, which brings on our first complication. This condition is treated as any other pus drainage case until it is firmly walled off from the cavity of the abdomen. Then solid food is administered and patient gotten out of bed as soon as possible, home for one or two months, or long enough to see that it will not close itself. The patient has had time to build up, the infection is limited and he is in much better shape for repair. Fecal fistulae heal quicker with solid food than with liquids. Sometimes a loop of bowel, usually the ileum is engrossed in the wall of the abscess cavity, becomes gangrenous and actually comes in two. I have had a few cases of this kind, where all the fecal matter came through the wound, and the separated bowel was some eighteen inches away from the colon. These cases must not be operated too early, build them up by all means. At least two months, better three, should supervene between operations if one expects a successful outcome. Then one may do an end to end anastomosis, Murphy button or what have you, without much fear of infection. I usually cut out the scar and close the wound as in a clean case, with the exception of a small rubber tissue drain in the corner of the wound for the first few days.

The thing that will eventually be done in these conditions where the abscess cavity or the gangrene involves the colon alone, walls are thinned out and a fistulae looks inevitable, is to open the colon at a healthy place, introduce a large tube into the ileocecal valve, drain all fecal matter outside the wound, give the colon a rest, and in a few days repair the colon without a fistulae forming.

Angulation and ileus are best treated by not having them, or prevention, which consists of not too much water by mouth the first two days, constant bowel irrigation with salt solution, with or without glucose as Murphy drip. A jejunostomy or ileostomy before peristalsis ceases as it does no good after, and last but not least,

a too tight adhesive band across the abdomen to hold the dressing.

Don't be in too big a hurry to give a purge after these operations. I have seen cases where I believe fistulae, angulation or ileus would not have occurred should the oft two ounces of castor oil on the proverbial third morning not been given, and the attendant relied on irrigation for his elimination. Some one said "splint the bowel with morphine." And one readily should for the first three days, giving the almost devitalized tissue time to recuperate. I find little use for drug stimulation in these cases, as the salt and glucose seems to supply this. In exceedingly grave cases I use camphor in oil, three grains every three or four hours, deep in the muscle. In the female patient the drain should extend to the bottom of Douglas's pouch. All complications of tubes and ovaries are treated as indications demand.

In conclusion, we must remember that the immediate after-care in these cases rises or lowers our mortality in proportion to our efforts to carry our case to a successful termination. In a good number of over a hundred cases in the last three years the writer has a mortality of less than eight percent from all causes. I always remove the appendix. I have no argument with those who do not but it strikes me that if the appendix is the foci of infection, it should by all means be removed, it requires little longer to do so. The only case I have ever operated without removing it is in the hospital now with fecal fistula and an empyema. This case had a severe pneumonia of the right lung at the time of operation and it was done under local. I think the fluid drainage is through the ruptured appendix and will necessitate another operation.

Another thing, this waiting for an abscess to wall off. It's walled abscess when it is an abscess, and when a doctor waits for the walls to become thicker he does so at his patient's peril. He is not getting elimination but is absorbing toxins all the time, and his fluid balance is being lowered, acidosis decreases his vitality. The days one waits for the walling off certainly increases the gravity of the case, when they could so well be used in the improvement of the case. With the after-care as specified here, the drains of proper size and length, placed in the proper positions you have a good chance to save the patient. Give large amounts of fluids, preferably salt and glucose. Keep patient ele-

vated, and lots of drains properly placed. Do not purge too soon. Do enterostomy before peristalsis stops. Take out the appendix and do not wait for walling off.

A WORKING KNOWLEDGE OF GOITERS

H. M. MCCLURE, M.D.
CHICKASHA

The numerous classifications of goiters proposed from time to time have varied so much that confusion rather than clarity has been the result. The classification I will give is not my own but I believe that it is the best working classification up to the present time.

The classification is as follows:

1. Colloid goiters.
2. Adenomas without toxic symptoms.
3. Adenomas with toxic symptoms.
3. Graves' disease (with exophthalmus).

One of the facts that I would like to get across is that the classification I have just given, does not represent certain diseases of the thyroid gland, but rather represents stages of one progressive disease. So that when you diagnose one of the different stages you are not diagnosing a separate clinical entity, but rather you are only referring to a stage which is characterized by changes in the pathological and clinical findings. The clinical findings go hand in hand with the pathological findings and vice versa. A competent pathologist can, by careful study of the microscopical section depict the clinical findings of the owner of the gland studied.

I will not dwell on the non-toxic colloid goiters but I will say in passing that they should always be considered as a potential toxic gland.

The changes in the thyroid gland associated with toxic and non-toxic symptoms present four fundamental pathological characteristics which may be present in varying degrees but you may be sure that they are always present to some extent. These changes are: first, an increase in the height of the epithelium lining the acini. This increase is from the low cuboidal to high columnar; second, a diminution in quantity and alteration in quality of the colloid; third, lymphocytic infiltration; fourth, circumscribed or diffuse adenomatous growths make up the histo-

pathological elements out of which a microscopic picture of thyroids is constructed.

There are a few very important diagnostic points which we as physicians are apt to overlook in our routine history taking and examinations. These are very important for if a diagnosis of toxic thyroid is made early and the proper treatment carried out we will be able to save the patient's body considerable wear and tear which is surely going on if our diagnosis is correct.

If you come in contact with a patient who is losing weight but still has an appetite which is normal or better than normal, a toxic thyroid should be suspected. If you see a patient who says they are more nervous than before, and that they lose their temper more easily than they did in the past, always suspect a beginning toxic goiter. If a patient complains of tiring easily and that they are exhausted after a little work, be sure to delve into the history with reference to the symptoms produced by a toxic thyroid gland. If patients present themselves saying that their heart runs amuck at times, and that their heart pounds and skips be sure to feel of their neck. Therefore when you see a patient that has any or all of the following symptoms, namely, loss of weight, excessive appetite, irritability, nervousness, tachycardia, muscular fatigue, heart consciousness and perspiring hands, be sure to examine their thyroids with reference to hyperplasia or growths and even if you do not find an enlarged gland or an adenoma, have a basal metabolic rate at the earliest possible time.

The great trouble today is latent diagnosis of toxic goiters. We are prone to wait until the terminal symptoms, namely, extreme emaciation, exophthalmus, lid lag, disturbance of convergence, decompensated heart, or extreme tachycardia develop. There are a few abdominal symptoms which are very confusing but these are generally found in the terminal stages only. These abdominal symptoms are pain, vomiting and diarrhea. I want to impress and emphasize the fact that the size of the gland does not play any part in the diagnosis except where the gland is palpable or prominent. If the gland is not palpable but the clinical findings are present, do not hesitate to make a diagnosis of thyrotoxicosis.

The treatment of toxic goiters is one

place where the internist and the surgeon should be linked very closely, for the treatment of toxic goiters resolves itself into one procedure, or perhaps I should say two procedures, namely, preparation for operation and the surgical procedure itself. I have never seen thyrotoxic symptoms relieved, with completeness and satisfaction with any other procedures.

In perusing the literature one finds hundreds of ways to prepare the patient for operative procedures. But all of the methods, when carefully studied resolve themselves into Lugolizing the patient, rest in bed, plenty of sleep, high carbohydrate diet, the carbohydrates being pushed in the form of glucose candy, meats being entirely eliminated. Not infrequently digitalis is resorted to if the diagnosis is not made early, or the patient has previously refused adequate treatment. The length of time the above treatment should be carried out is determined by the change in weight, the reduction of the basal metabolic rate, and the clinical evidence of restoration to a normal pulse and a normal nervous balance.

I will not go into the surgical technique but I will say that I believe that fully 95 percent of the toxic thyroids can be removed under local anesthetic without any trouble to the patient or the operator. I believe that all goiters should be removed under local anesthetic and I personally like the technique used by Dr. A. E. Hertzler, of Halstead, Kansas.

SOME PRACTICAL POINTS IN THE TREATMENT OF DIABETES

L. E. WOODS, B.S., M.D.
CHICKASHA

This discussion assumes that the diagnosis is established. However, I would like to state that in an examination of the urine the absence of sugar is not sufficient to exclude diabetes as an etiology of the complaints that many times brings the patient to the doctor's office. In insidious cases the history may be inadequate to establish a diagnosis unless unusual care is exercised in taking it. Consequently a casual examination may lead to treatment of the obvious complications rather than the disease itself. For example, repeated crops of boils may be due to underlying mild diabetes and the patient have a sugar free urine, especially if he has for any

reason reduced his diet shortly before being examined. Where there is a suspicion of this factor it is wise to give the patient a high carbohydrate diet and see if he then throws over sugar in the urine.

On the other hand, hyperthyroidism is frequently associated with elevation of the blood sugar and if the patient has a low kidney threshold he may show a glycosuria and the early symptoms of thyreotoxicosis be overlooked.

The treatment of diabetes is not essentially different in the home or in an institution. However, some of the institutional details may be impractical in the home. In either case the principles of treatment are the same and based on the control of diet, metabolism, hygiene, education of the patient and the use of insulin.

An effort should be made to establish a well balanced maintenance diet. If the diet is not well balanced there will be increased difficulty in keeping the patient strictly on his diet, and haphazard methods have no place in this problem.

To properly handle a diabetic patient it is essential to have the facts at hand that are necessary to work out a diet that is suitable for each individual case, also it is necessary that you know the part that fats, carbohydrates and proteins play in the diabetic diet and their relationship one to another.

The metabolism rate must be kept low because, as Wilder and his associates have shown, the ability to utilize glucose varies inversely with the metabolic rate. When the metabolic rate is lowest, glucose utilization is best and acidosis is consequently more easily controlled.

Proteins stimulate metabolism and for this reason the present endeavor is to maintain nitrogen equilibrium at the lowest level which is consistent with nutritive safety. However, a certain amount of protein is essential and it must be sufficient to maintain the nitrogen equilibrium without drawing on the body protein. In the adult this is about 2-3 to 1 gm. per kilogram body weight.

The carbohydrates of the diet depend on the ability of the pancreas to utilize them and should not be great enough to cause the appearance of sugar in the urine. Resting the pancreas is an old and important principle in the treatment of diabetes. If the islands of Langerhans are over-

stimulated by the demands of an excess of carbohydrates exhaustion and degeneration continues while rest obtained by keeping the blood sugar down will enable them to be better restored to function. If the exhaustion is already to the point that the patient cannot tolerate sufficient carbohydrates in his diet to preserve a safe ketogenic-antiketogenic ration with a maintenance diet he must then be given insulin sufficient to accomplish this end. The fact must not be lost sight of that the total carbohydrates of the diet is a sum of 58 percent of the protein, 10 percent of the fat and 100 percent of the carbohydrates. It is found that one gm. of carbohydrate will enable the body to metabolize about 1.7 gm. of fat. (1-1.3 is usually employed).

The metabolism of fat in the diabetic's diet is of greatest importance because if it is disturbed through inadequate oxidation coma may result. The proper utilization of fats avoid the subsequent production of acidosis which is the cause of coma. There must be a balance of the fats and the carbohydrates in the diet in order to properly utilize the fats and this balance or ratio must be such that the fats are equal to twice the carbohydrates plus 1-2 the protein. If this balance is kept there will be little danger of acidosis resulting from improper fat metabolism.

The total number of calories that are necessary for a maintenance diet will vary considerably, depending on the activity of the patient. If he is in bed with little activity, about 25 calories per kilo is usually sufficient. This figure must be increased depending on the activity of the patient. The patient's weight should be watched and the diet calculated to meet the demands of any increase or decrease in weight that is observed. Good hygiene is very essential in maintaining a diabetic patient's metabolic equilibrium. Worry, fright or any emotional extreme as well as any acute infection may upset the entire diabetic program. The patient should strive for good physical hygiene as well as mental hygiene. He should get plenty sleep and avoid fatigue. The bowels should be regulated and he should carefully regulate his activity and exercise.

It is necessary to get the intelligent cooperation of the patient and teach him the nature of his disease and the object of the treatment. He should learn to compute the food values in his diet and know the necessity for accuracy, likewise the haz-

ard of any deviation from his rules. He should be able to test the urine for sugar and recognize the signs of impending disaster such as acidosis or insulin shock. From the beginning he should be taught to give his own insulin. If the patient is unable to utilize carbohydrates in sufficient amounts to permit him to take a maintenance diet without showing the presence of sugar in the urine he should be given insulin. The dosage of insulin should be such as will enable the patient to take a maintenance diet without showing sugar in the urine and this will have to be determined for each individual, as the severity of the case as well as other factors determine the dose necessary to accomplish this. Small doses should be given in the beginning and these increased to the point where the urine is free of sugar with the patient on a maintenance diet. In determining this the specimens of urine passed at different times of the day should be examined separately, for in many cases it will be found that the patient's ability to handle glucose will vary at different times of the day and if such is the case the respective dose of insulin should be increased or decreased to take care of this variation. If this point is observed you may avoid insulin shock which may occur if too large a dose of insulin is given when the patient's ability to handle carbohydrates is at its best. Insulin is given primarily to produce energy and not for the purpose of permitting him to indulge his dietary excesses. If the patient is emaciated a diet above that of maintenance may be employed with care and deliberation. To attempt this end hastily may result in disaster. It is best to keep the weight of the patient somewhat below his normal weight.

HYDATIDIFORM MOLE WITH REPORT OF A CASE

B. R. GAYMAN, M.D.
FOSS

This condition was first reported by Shenck von Grafenberg in 1516, but the true nature of the disease was not recognized until 1827, when it was reported by Velpeau.

Hydatidiform mole is a relatively rare disease variously reported as occurring once in 20,000 to once in 2500 pregnancies, the latter figure probably being more nearly correct.

Pathology—There is a profuse and irregular proliferation of both the Syncytium and Langhan's layers of the placenta which penetrates the fibrin layer and frequently invades the uterine musculature.

The condition may be either benign or malignant, however, this may only be differentiated clinically since there is no microscopic difference. On gross appearance the mass is made up of a great many clear cysts joined together so that they look much like a bunch of grapes. The mole may involve the whole placenta or only part of it and the foetus is destroyed early so that there may be none of it demonstrable or only a part of the cord may be left.

Symptoms—Enlargement of the uterus over that to be expected for the length of pregnancy. Painless bleeding early in pregnancy. Passage of grape-like cysts.

Diagnosis—Is made from the history of the length of pregnancy compared to the size of the uterus, the history of painless bleeding, passage of cysts, and on bimanual examination the finding of the mass resembling a bunch of grapes in the cervix.

Treatment—Since the growth frequently invades the uterine musculature manipulation must be very gentle to prevent perforation. The cervix should be dilated sufficiently to admit the finger, then the mass is carefully peeled off and removed, after which the uterine cavity is explored to be sure all pieces are removed and a pack inserted. Warning—the curette should not be used because of the weakened uterus. The patient is to be watched for several months because of the possibility of malignancy.

CASE REPORT

Mrs. J. N., white, 35 years of age, 4 para, has previously been in good health. Her family history is entirely negative.

The last menstrual period was about August 15, 1929. On November 14, she was seen and complained of cramping pain in the lower part of her abdomen, not severe, free hemorrhage, and the passage of some material from the vagina.

Physical examination—Head and neck, normal except for infected teeth and gums; chest, normal; heart and blood vessels, normal except pulse is rapid, 112; abdomen, a mass the size of a 5 1-2 month pregnancy in the lower abdomen; vaginal, free flow of bright blood especially with uterine contractions. The cervix soft and

dilated 2 cm. with a mass which felt like a bunch of grapes filling it.

Treatment—Since the cervix was dilated the index finger was introduced into the uterus and the tumor mass peeled loose from the uterus and removed, an iodized pack was inserted which was removed the next day.

The mass removed consisted of many small cysts of pink color joined together so as to form a large cluster, and a piece of normal placenta about 3x4 cm. in size, the whole mass being about large enough to fill a quart fruit jar in which it was placed for preservation.

The patient made a satisfactory and uneventful recovery and has as yet shown no signs of malignancy.

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SOME OF THE ESSENTIALS OF A SUCCESSFUL HOSPITAL*

Miss Evelyn Buchan, R.N., Superintendent.
Weedn Hospital, Duncan, Oklahoma

Mr. President, Members of the Oklahoma State Hospital Association and Friends:

I will give you what I think to be some of the essentials of a successful hospital.

I should perhaps state first of all, the locality of your hospital and its surroundings, artistically planned, with free exposure to sunshine, cool breezes and the open sky. Velvety, well kept lawns, and bright sunshine, together with plenty of trees and shrubbery. A restful picture it presents, as watched by the sick one inside, to whom beauty at this time is so much appreciated.

Now, as we step into that building situated on such an ideal location I wonder if there are not many problems to be adjusted therein. First, may we not consider that which I think is the greatest educational feature of a hospital, its nursing staff, the ones who have kept the real spirit of service in the hospital alive today; the right kind of training for them.

We may argue pro and con regarding this matter, set up requirements for educational standards, flaunt hours of theory at bewildered freshmen, worried juniors and seniors, add to and take from their curriculum to make the R. N. theoretically

*Presented at the annual convention of the Oklahoma State Hospital Association, Tulsa, December 4.

the finished product when she leaves our schools. But if we have failed to bring the young student in her first hours of training the right viewpoint of her profession, if we have neglected to impress her with the realization that she has been caught into a glory of service, and if we have taken into the profession women whose lives are not lived according to the highest moral standards, our failure to select the proper type to become a nurse, then we, as hospital people, are to blame, indeed, our teaching and preaching has been in vain.

Health, age, personality, and the very earnest desire to be a nurse, should be considered in the applicant. If one is admitted to the hospital training school and during her course of instruction is found undesirable because she cannot master her theory, who is poor in her practical work, and who also has the wrong influence on other students, should be eliminated as quickly as possible, regardless of sentiment or pressure from the outside. After all, do we not all say at times, "Would I be proud to claim her as a graduate from my school?"

We have many schools in the country I have heard, however, I can scarcely believe it, who allow, I will say allow, their nurses many privileges such as smoking, drinking, late leaves granted often, unchaperoned. How could one expect the perfect nurse in a school with this discipline? We do not want nurses who are hardened, coarsened by unwholesome contact with things of this sort, but to bring them through the years, teaching them, the cultural things of life, and their real responsibility as women of this profession. Bedside nursing is after all that degree of nursing which concerns our patients most. The good, kind words of that grateful patient concerning the wonderful attention received from that little bit of personality, your student, means so much to the hospital, to you and to her. Again I might mention, close attention to bedside service from the student nurse is not to be considered lightly. Sometimes we give more thought to theory and not to bathing the face, a real good back rub, the shaking up of the pillows, preparing an attractive tray, tempting the sick to eat some delicacy, all these innumerable things go to make the satisfied patient. So we must have just a little more personal sympathetic contact and that, I think can be gained only through real, loyal workers.

Next to the student nurse, I think it quite appropriate to discuss the proper selection of that student's supervisors, instructors and her superintendent. Not every graduate nurse is by any means an instructor, or is qualified to organize and manage a hospital, no matter how small. And sometimes when the right nurse does come along, and they seem to come very slowly, she is so overburdened with responsibility that she soon breaks under the strain of serving in a double capacity, or should I say triple, that of business manager, superintendent of nurses, and sometimes janitor. And scarcely any time is left her for constructive thinking. But with the cooperation of one of the more efficient graduates, it is indeed a pleasure to have a superintendent who has such cooperation, having things go like clockwork, pleasant at least when things do not go smoothly, and after all, the one who is instrumental through her effort and ability in sending out our patients with the kindest feelings toward our institution. So, therefore, this person should be chosen not only for her technical ability as a nurse, but for her ability to guide others, being courteous at all times even to complaints that come from nurses, patients, their relatives, orderlies, maids, and all the many people who come to her with everything. Indeed, she must be a person who has the virtue of a saint, the patience of Job and the wisdom of Solomon.

A well equipped hospital is our next essential, not so much stress to be laid on the beautifully carved furniture in our reception rooms, the tapestry and portraits adorning our corridors, the lavish display of furniture in our solariums and private rooms. Beauty, yes, we desire. But let it be simple, substantial. The actual needs of the institution for the patient, physician, nurses, come first, keeping in mind the patient's interest at all times. Too many hospitals spend money lavishly on buildings of architectural splendor, costly furniture in our nurses' homes, spoiling in a sense that little girl from her humble home's idea regarding luxury, disregarding the importance of a well equipped sterilizing room, laboratory, class room, demonstration room so necessary in the daily routine. That brings us to the subject of carefully selected equipment, economy in purchasing supplies and materials used daily.

We have heard so much concerning the

efficiency of purchasing, but we have not heard a great deal about the efficiency of issuance. The intelligent purchasing of hospital supplies cannot be made without an intelligent understanding of this phase of economy. Keeping a perpetual inventory and a check on all outgoing supplies is one solution to this problem. And I might say here that it is a mistake to let the heads of each department do its own purchasing. One or two reasons may be given. First, they do not have the same opportunity to keep in touch with the market. Second, it prevents duplication of orders. Third, it allows a better method of procedure in checking invoices and supplies brought to the store room. A central store and service room is a real economy. A requisition slip is brought to the main office, which is turned over to the buyer who can then know when the supply is really exhausted, and therefore orders accordingly. Of course, such articles as hot water bottles, ice caps, tubing and sheets that deteriorate, and perishable supplies, are bought in small quantities, and liquid soap, creosol, lysol, vaseline bought in large quantities at a saving. In regard to our linen supplies a seamstress should be employed part or full time, who will make up sheeting into the desired sized sheets, toweling, curtains, patients' night shirts from unbleached muslin or sheeting, operating caps, and who will in her spare time mend torn linen, as the old proverbial saying applies in this instance as well as in others, "a stitch in time saves nine."

Now, in regard to food which calls for careful buying, and which in our smaller institutions who do not employ a dietitian or buyer, is not given the attention it deserves. And how price in food stuffs vary in the different stores. Even the careful buying of the various cuts of meat is as important as the cooking. The uselessness of wasting food, especially in the diet kitchens, should be taught employees. Handling large amounts of food, they become indifferent to the need of saving and consider small amounts not worth bothering with, so off it goes into the waste can,

Food left in containers on the steam table should certainly be sent back to the kitchen to be used again. These small items are quite worth considering. Too many hospitals are prone to use canned goods in preference to fresh foods. This is, indeed, a wasteful practice.

At this time I think it wise to say some-

thing regarding the obtaining of funds with which to buy these supplies. Though some of you may think it most unsuitable to bring up financial matters with the patient as soon as he enters the hospital, I think the best and only way to conduct business efficiently is to talk business from the start, being diplomatic and courteous all the while, and state that you wish to collect a week in advance and also ascertain their ability to meet further expense while in the hospital. If there is any doubt whatsoever of a clear understanding this should be discussed at the very beginning. Did you ever have a patient leave your hospital when you were trying to collect for the first week? I have had that experience, the patient being taken out to another hospital where they incurred an expense of several hundred dollars; later they returned to our hospital and paid in cash a bill of \$400.00, leaving highly satisfied and have ever since been loyal friends of ours and boosters for our institution.

A good business manager in a hospital is indeed a valuable asset. No matter how small the institution, it should employ a person who understands business methods, business ethics, and can devote full time to the handling of books and accounts; therefore eliminating that part of the work from the busy superintendent. Besides, it is so much easier to say or refer your patient to the business manager, isn't it, doctors? Yes, indeed, and much more profitable.

Having thoroughly efficient people at the head of each department, adds greatly to the betterment of your institution. It is found to be so much more economical besides the efficiency of service and time saved the physician in charge of other personnel. And may I mention something concerning your laboratory. A thoroughly equipped one, which so aids in diagnosis, helpful both to your community and hospital. A routine laboratory procedure may then be used on every patient, as a blood count, urinalysis and Wassermann, taken at a moments notice, thereby eliminating guesswork. At the present time there are too many hospitals that do not have fully or partially equipped laboratories or a thoroughly trained technician, the reason oftentimes given for not having them being that they are unable to maintain one. But that is nonsense. If your hospital has but ten beds, you should have an efficient laboratory and the proceeds therefrom

should enable one to retain the services of a competent technician.

The various other departments such as the record, physio-therapy, X-ray and dietary, deserve honorable mention and discussion, but time hardly permits.

Weekly, or better, monthly conferences with your department heads, regarding costs, supplies, correspondence, new methods of service, number of patients treated, etc.; not a time particularly to discuss unpleasant things, or thrash things out, if you will excuse the slang, but as in the physicians' and surgeons' staff meetings, something for the betterment of the organization. The contact it brings, just in getting together means something. Everything after all, when simmered down, is for our guest, the patient. Check each department closely to ascertain the net proceeds from such department. As a matter of fact, you will occasionally and more often than you would think, find a particular department giving less than adequate returns for the money invested. Now, in matters of this kind, I think this should not be left until tomorrow to settle, but immediately bring into action the things necessary to put this deficient department on a paying basis. If the head of that department tells you that it cannot be done, it may be necessary to take that department over and prove that it *can be done*. Another thing, I will call your attention to at this time, if you have any quitters or "canters" in your employ, "can" them or quit them immediately, replacing them with stickers.

Last, but not least, in your organization the building of an efficient, loyal, competent staff, not to the hospital alone, the patient, but to the fellow staff members as well. They must be loyal to the hospital and to themselves if congeniality is to be expected. Being as careful as you may, there will occasionally be a physician who will obtain membership on your staff, who will keep your staff in an uproar, sometimes for a selfish motive. The quicker you can dispense with him, doing it as diplomatically as possible, the better your staff will be. Congeniality and the spirit of co-operation among each and every member must be manifested if you would safeguard the interest of the patient.

Many other things I should like to bring up, especially in regard to the little things in our daily hospital life that count. Front door courtesy, telephone information giv-

en in a courteous tone, a spirit of good fellowship ever prevailing. The cultivation of a wonderful personality that so pleases our patients. As Oliver Wendell Holmes gave us to ever remember, in regard to the sick ones:

"Last, not least, in each perplexing case
Learn the sweet magic of a cheerful face.
Not always smiling, but at least serene
When grief and anguish crowd the anxious scene
Each look, each movement, every word and tone
Should tell the patient you are all her own.
Not the mere artist purchased to attend
But a warm, ready self forgetting friend
Whose genial presence in itself combines
The best of cordials, tonics and anodynes."

—o—

VACCINE THERAPY

Ludvig Hektoen and Ernest E. Irons, Chicago (Journal A. M. A., March 16, 1929), report on the result of a questionnaire on vaccine therapy sent to American physicians. Of 1,261 physicians answering the questionnaire, only seventeen consider vaccine therapy to be a generally useful and superior method of treating infectious diseases. Of the 1,261 physicians, 430 do not use, or have never used, autogenous vaccines in the treatment of any disease, and 142 use or have used them very rarely; 172 physicians report having abandoned the use of autogenous vaccines entirely. Of the 1,261 physicians, 577 do not use, or have never used, stock polyvalent vaccines in the treatment of any disease, and forty-nine use or have used them very rarely; 198 physicians report having abandoned the use of stock polyvalent vaccines because of their failure as therapeutic agents. One or more of the 1,261 physicians report using or having used stock vaccines in sixty-three different disease conditions. In every one of these conditions, save otitis media, mastoiditis, acne, furunculosis and whooping cough, 90 percent or more of the physicians of all four groups do not at present use polyvalent stock vaccines therapeutically. In the majority of instances the percentage not using is nearer 100 than 90. In the sixty-three different disease conditions in which the use of stock polyvalent vaccines is reported, the negative or inconclusive results greatly outnumber the good results in all but a few instances. Of the 1,261 physicians, 140, or 11 percent, report untoward and harmful effects from the use of stock polyvalent vaccines. The 140 instances of harmful results include a number of cases in which death has been considered due to the use of vaccines, subcutaneously injected. Seventeen cases of asthma are reported to have followed courses of bacterial vaccines, administered to patients who previously were not known to have suffered from asthma. A questionnaire on the use of various forms of vaccine in tuberculosis was sent to tuberculosis specialists, and of the 267 that answered five state that they use tuberculin as the main form of treatment in this disease. The majority counsel against its use in all but quiescent or slightly active cases; sixty-three (23 percent) report harmful results from the use of tuberculin, autogenous or stock vaccines, and from the "Non-Virulent T. B. Vaccine." Of sixty-three, seven have observed deaths to occur which they attribute to the injudicious use of tuberculin; five have observed deaths to occur which they attribute to the use of stock polyvalent vaccines.

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EDITORIAL

HOSPITAL SERVICE AND THE COST OF MEDICAL CARE

It is of great speculative interest and should cause physicians and officials generally, of the State of Oklahoma, to ponder upon the findings and deductions recently made public by Durant Duncan of the agricultural economics department of Oklahoma A. & M. College, a report based upon a study and survey of health expenditures in 508 farm families of eight typical cotton communities in Oklahoma.

It was revealed that farm families of the "cropper" class spend only one-half as much per year for health maintenance as

families of the full "owner" class. Where 38 families of the "cropper" class spend \$41.00 for all health purposes in 1925, 139 families of the full "owner" group spend \$82.00 each. Other surveyed groups showed part owners spending \$80.00 a family and 275 share and cash tenant families spending only \$75.00.

For doctors and hospital care full owners spend \$53.00; part owners \$45.00, while share, cash and "cropper" farmers spend only \$26.00. The survey deducts the indication that Oklahoma farming families, like the farming classes in many other states, who stand in ready need of health protection, are the least able to afford it.

The report notes that one unvaccinated child in a community is always an incubator for the germs causing diphtheria, smallpox, scarlet fever, and the like. Duncan insists that health education of the farming classes, along decided economic and social lines must be executed before anything worth while is accomplished.

As to the cost of hospital service for patients of moderate means, the report of Niles Carpenter¹ indicates that economic changes, changes in our civilization are rapidly bringing about and will continue to bring about radical changes in hospital construction, maintenance and incidentally the cost of medical care. Everyone, of all social groups, from the poor through the well-to-do as well as the rich, demand hospital care.

It is noted that most of the newer hospitals now provide one or more of three types of accommodations best suited for the patients of moderate means—that is, beds in semi-private rooms, beds in small wards and inexpensive single rooms. Nineteen architect members of the American Hospital Association report a rather sharp falling off in the percent of beds in large wards, from 1908 to 1928. Wards with cubicles seem to be one of the favorite means of affording semi-privacy to patients desiring such accommodation, while 2, 4, and 6 bed wards are becoming popular.

The Massachusetts General Hospital plans a new construction of 300 beds of wards containing also cubicle four-bed wards, two-bed semi-private rooms, and single rooms. The rates vary from \$6.50 a day for single rooms, to \$4.00 a day for cubicles. According to the director of this hospital it is proposed to limit the fees that may be charged by the staff, to fur-

nish so high a grade of floor nursing that special nurses will be rarely required.

From the medical profession there has slowly grown up over the past years insistent demand that hospitals make available to the patient, and within economic bounds, certain basic and necessary facilities, these especially include routine laboratory work, some of them even including X-ray work.

The solution of these problems lies squarely upon the shoulders of the medical profession. It is only upon the advice of the competent physician and surgeon that gradual reforms, improved technique and equipment, will be made available to people of moderate means.

Considering the enormous, potential and actual wealth of Oklahoma, very little has been done toward the endowment of hospitals as such. Millions upon millions of dollars in oil alone have been produced by the State but very little of it has been of benefit to what is commonly called the middle or lower classes of people.

1. Abstract No. 4 Publication by the Committee on the Cost of Medical Care, 910 Seventeenth Street, N. W., Washington, D. C.

SUBPHRENIC AND LIVER ABSCESS

Perhaps one of the most baffling conditions confronting both internist and surgeon and in which diagnosis is usually long delayed, is that of formation of pus between the diaphragm and the liver or in the liver itself. Joseph Schwartz¹ quotes Barnard as including with subphrenic abscess any liver abscess near the surface and more or less intimately associated with the diaphragm. The behavior of subphrenic or liver abscess presents some very unusual traits; for instance, Schwartz states that empyema is rarely complicated by a subphrenic abscess—his observations cover 150 cases of empyema—nor has he ever observed it postmortem. Whipple in one thousand cases of subphrenic abscess, found 25 percent due to stomach lesions, 21 percent due to appendicitis, 16 percent to biliary tract, 5 percent to the duodenum, and the rest secondary to lesions of the kidney, spleen, pancreas and lungs.

The onset of the case is usually slow, the symptoms nearly always misinterpreted and the patient may come to a very low state before proper surgical intervention is undertaken. In eight primary cases reported by Schwartz, that is cases of subphrenic or idopathy liver abscess, gripe

was the condition thought to be present in every case by the physician in attendance.

Bronchovesicular breathing, cough, dullness on percussion of the lung, in fact, many indications of chest involvement one case being complicated by a bilateral pneumonia, are concomitants of these cases. Pain on respiration, elevation of temperature, chilly sensation, malaise, increased weakness, are the rule.

Schwartz noted in four of his cases that edema over the lower axillary part of the chest on the side of the abscess was present, however, this generally appeared when the case was well advanced. It is significant that many of these case are admitted to the hospital with a prevailing diagnosis of pneumonia. In the writer's experience, two such cases after operation were found at post mortem to have ruptured upward and through the diaphragm into the pleural cavity. In the cases reported by Schwartz death occurred almost immediately, and apparently after rupture of the pus into the pleural cavity. Frequently X-rays of the affected side may show the diaphragm to be higher than normal, in one of the writer's cases—believed subphrenic, but idiopathic abscess of the liver—the diaphragm reached to the 6th rib; at that time the man had been in a hospital for 36 days, and prior to his entrance to the hospital he had not felt well. It is the writer's opinion that the prognosis in these cases is always uncertain, some apparently very prolonged desperate cases rapidly improving, while others go to a fatal outcome despite any and all means.

Schwartz notes that roentgenograms and fluoroscopy aid in disclosing the lesions, elevation of the diaphragm with restricted excursion, presence of air with or without a fluid level beneath the diaphragm and intrathoracic changes leading to a diagnosis of pneumonia and pleural effusion.

Success in treatment usually depends upon the earliest possible recognition of the condition, and prompt surgical intervention. The mortality rate is high simply because the condition is either not recognized at all or is recognized so late that extensive pathologic changes take place, or because the abscess is inadequately drained. Insufficient drainage is a useless procedure. The drainage area should be wide and ample.

1. Archives of Surgery, Number 2, February, 1930.

Editorial Notes—Personal and General

DR. GEORGE L. JOHNSON, of Atlanta, Georgia, has been assigned medical officer in charge of the U. S. Veterans at Muskogee.

DR. HUGH SCOTT, Chicago, "transplanted Oklahoman," recently spent three days visiting Muskogee friends and renewed old acquaintances.

KINGFISHER COUNTY MEDICAL SOCIETY elected the following officers for 1930, at a meeting held in February: Dr. Newton Rector, Hennessey, president; Dr. C. M. Hodgson, secretary.

DR. E. A. WELCH, Washington, D. C., has been assigned as clinical director of the U. S. Veterans' Hospital, at Muskogee. Dr. Welch succeeds Dr. E. K. Moore of Philadelphia, who has been assigned to the central office at Washington, D. C.

ALBERT PIKE HOSPITAL, McAlester, recently conformed to the standard of requirements of the American College of Surgeons and is now on the standard list of hospitals. This is indeed an accomplishment for any hospital in a small city. The staff of Albert Pike Hospital is to be congratulated.

OKLAHOMA SOCIETY FOR CRIPPLED CHILDREN has issued a short pamphlet to all the physicians of Oklahoma, containing in brief an abstract on "The Laws Governing the Treatment of Indigent Children" affected with orthopedic conditions. Oklahoma physicians should retain and keep its provisions in mind.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES entertained with a cancer clinic, dinner and evening meeting at the Okmulgee City Hospital, January 20, 1930. Dr. Ellis Fischel, St. Louis, was the guest of honor. He delivered an address on "Cancer and the General Practitioner"; in connection with this he showed and explained the Canti cancer film.

DR. R. M. SHEPARD, announces the opening of his office, 306 Medical Arts Building, Tulsa, for the diagnosis and treatment of diseases of the lungs. Dr. Shepard was formerly superintendent and medical director of the Oklahoma Tuberculosis Sanatorium at Talihina. For the past two years he was superintendent and medical director of the Valley View Sanatorium at Paterson, N. J.

DR. S. R. CUNNINGHAM, Oklahoma City, member of the "Committee on Traumatic Surgery of the American College of Surgeons," appeared on the program at the meeting of the American College of Surgeons at Denver, Colorado, in January. Subject for clinical lecture was, "Skeletal Traction for Fractures of Long Bones." Dr. Cunningham also read a paper at the general meeting on "The State's Duty in the Care of Crippled Children."

DR. WILLIAM HENRY WELCH, one of America's most brilliant physicians, will be honored on April 8th, the date of his 80th birthday. Friends and admirers of Dr. Welch will celebrate his birthday in Washington in a manner befitting his distinguished career and outstanding contributions to human health, happiness, and knowledge. The management of this celebration is sponsored by a remarkable array of talent and brains, both medical and lay.

MUSKOGEE COUNTY MEDICAL SOCIETY held a regular "field day" meeting February 10th. More than forty physicians were present. The speakers of the occasion were Dr. Basil A. Hayes, Oklahoma City, who delivered a talk, illustrated by lantern slides, upon "Common Rectal Disturbances and Their Relief." Dr. LeRoy D. Long, Oklahoma City, delivered a classic address, also illustrated, upon "Splenic Anemia." The meeting was voted a very pronounced success.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES entertained physicians from Muskogee, Tulsa, Seminole, Hughes, McIntosh and Lincoln counties, February 13, 1930, at dinner at the First Presbyterian Church, Henryetta. Dr. Harvey B. Matthews, associate professor of gynecology, Long Island College Hospital, Medical School of Brooklyn, N. Y., was the speaker. His topic, illustrated by lantern slides was, "Diagnosis and Treatment of Chronic Endocervicitis."

DR. E. J. ROSE, for two years medical officer in charge of the U. S. Veterans' Hospital, Muskogee, was recently transferred to the central office in Washington, as chief of the medical division. The removal of Dr. Rose is considered a distinct loss by the profession and laymen of Oklahoma, who came in contact with him as an official. Nearly 300 people from over the State attended the banquet in his honor at the Masonic Temple Thursday, February 13th. Dr. Rose leaves Oklahoma with the best wishes of those who knew him and his work.

OKLAHOMA PUBLIC HEALTH ASSOCIATION, according to Dr. Carl Puckett, secretary, Oklahoma City, announces that the Annual Early Diagnosis Campaign will be conducted in April. Dr. Puckett is prepared to furnish booklets and data to every physician who will prepare a paper on "Childhood Tuberculosis" for presentation to any County Society. The Public Health Association also has a few films, including one for this year which will be sent anywhere they may be used. The association would also like to have medical societies see that talks on tuberculosis prevention, are given before civic clubs, chapels in schools and in any other places where such may be believed to be beneficial.

DOCTOR EDGAR E. RICE

Dr. E. E. Rice, age 60, pioneer physician of Shawnee, died at his home, 706 North Park Street, January 27, 1930, from complications resulting from injuries received in an automobile accident, last November.

Dr. Rice was born in Flora, Indiana, in 1870. He received his A. B. degree from Logansport College in Indiana, and his degree in medicine from the Hospital College of Medicine at Louisville, Kentucky. Dr. Rice came to Shawnee in 1905.

Funeral services were conducted by Rev. W. A. Merrill of the First Christian church, with burial in the mausoleum.

Dr. Rice is survived by his widow, his son, Dr. Eugene Rice, Shawnee, and a brother, Dr. Lee L. Rice, of Bridgeport, Illinois.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Direct Skeletal Traction in the Treatment of Fractures. E. W. Hey Groves. *British J. Surg.*, xvi, 149, July, 1928.

The writer states that there is no ununited fractured long bone which cannot be corrected to full length and proper axis by skeletal traction. He discusses the use of the transfixion pin, nails driven into the sides of the bone, ice-tongs calipers, horseshoe clamp with screws, os calcis stirrups, and silk and wire loops. He believes that the transfixion pin is the most satisfactory.

It is always necessary to use a general anaesthetic in applying these pins, whether through the lower end of the femoral shaft above the condyles, in the tibia, below the tibial tubercle, or through the olecranon in fractures of the humerus. The technique of the application is given in full.

When the lateral displacement requires reduction by open operation, and the bones cannot be made to interlock, he partially transfixes the fragments by metal bradawls. These are left in place while the plaster is applied and are incorporated in the plaster. He claims that union is faster than by the use of plates and screws.

Changes of the Hip Joint Following the Reduction of So-called Congenital Dislocation of the Hip Joint. Waichiro Matsuura (Igakuschi), assistant to Professor Takagi, Orthopaedic Department of Tokyo Imperial University. *Proceedings of the Japanese Orthopaedic Society*, Vol. II, Pt. 1, 1927.

Since 1906, we have examined 210 patients by means of radiographs, after recovery from congenital dislocation of the hip joint. They were treated by non-operative methods. Some of the cases were traced, following up the progress of the condition for eighteen years after the reduction was made, and they were examined, radiographs being taken every two or three months during the first year after replacement of the hip joint.

An observation was made of the radiographic work systematically, concerning the hip joint changes, studying 112 cases the radiographs of which were perfectly taken through the mid-line anteroposteriorly, after these cases were considered to be anatomically cured. The important measurements of the radiographs were taken to explain the construction of the hip, comparing the affected side with the so-called normal side, and, in the case of adults, comparing the affected side with the normal adult hip according to Professor Takagi's statistics.

Following the observation of the author concerning the form of the acetabulum, it was proved that Ludloff's "Gleitfurche" (sliding groove) had disappeared, being filled in by new formation of bone in a year after the dislocated hip joint was reduced. It was further proved that the contour of the acetabulum was improved, and a slight hazy irregular shadow had been formed in those cases which were examined a few years after recovery. The measurement of the acetabulum shows that it develops less inferiorly but more laterally. Also the angle, which is measured

through Wollenberg's Y, is larger than that in the normal side in almost every case.

The size of the osseous part of the femoral head was determined by careful measurement, and it was found that there was no difference in curvature of the articular surface of the head of the femur from that of the normal side, though the head is usually flat. In numerous cases in which the dislocation was reduced before three years of age, the head appeared almost the same as the normal side.

The author has written in detail about the atrophy of the osseous tissue of the femur. This was not observed in any case which was examined later than seven years after reduction. But there was shown to be an increase of lime deposits in the head during the immobilization treatment period, and it was also seen that there was a peculiar double contour of the head in the recovered cases within three years.

Important measurements were made to explain the relation between the acetabulum and the head of the femur and make clear what is the position and relation between the acetabulum and the head of the femur.

Detachments of the Epiphyses of the Elbow from a Roentgenological Point of View. L. M. Asti. *Radiol. Med.*, XIV, 625, August, 1927.

The author first describes the manner and order of appearance of the nuclei of the bony extremities which form the elbow, insisting upon the importance of the exact technique. He believes nevertheless that the projections that deform the roentgenological picture of the nuclei cannot be causes of error, since, when the error of technique is such as to alter the relations of the nuclei with the corresponding epiphysis, there will also exist such a deformity of the bony parts as to place the reader on his guard. If the error of technique is not marked, it will not modify the relation between the nuclei and the corresponding parts. He proceeds then to consider separately the various detachments, viz., the detachment of the epicondyle, the detachment of the trochlea, that of the epitrochlea of the olecranon and that of the nucleus of the radial head. Of almost all of these varieties he gives examples, basing his observation upon 800 cases of trauma of the elbow. The difficulties that may be presented in the interpretation of some roentgenograms may be great. The author believes that cases of detachment are to be considered as rare and gives the roentgenological data for making the diagnosis of the condition.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

Treatment of Varicose Ulceration by Intravenous Injections of Quinine. K. P. Brown, Edinburgh *M. J.*, 35:472 (August) 1928.

The author states that Brown has treated twelve patients with varicose ulceration by injection of a quinine solution. A total amount of 2 cc. was injected on the first occasion, with the patient in an upright position; usually .2 cc. were injected at four different points in the varix. Ten

patients were completely cured by the continuation of these injections at weekly intervals until thrombosis of the veins was complete. In one patient the varicose veins became thrombosed, but the ulcer, after slow healing, rapidly broke down again. This was one of the first patients to be treated; his history sustained a chronic edema of the leg of considerable duration; therefore the patient was not a suitable subject for this method of treatment. In the only other unsuccessful case, neither venous thrombosis nor healing of the ulcer resulted from the injections.

Primary Tuberculous Lesion on Lip. J. Duken, Arch. f. Kinderh. 84:223 (June) 1928.

The author writes of the case of a child, in whose family there was no tuberculosis, but who was often closely associated with an adult with pulmonary tuberculosis who had just left a tuberculosis hospital. A peculiar small ulcer with a grayish white coating appeared on the right side of the upper lip. It resembled an impetigo lesion but showed no tendency to crust formation. It did not respond to impetigo treatment, and it did not spread, and it was the only skin lesion on the body. The cervical glands on the same side swelled three weeks later. They softened, and when incised, creamy pus escaped. The wound did not heal and fistulas remained for several months. The tuberculin test, applied four months after the initial symptom was strongly positive, and the child was sent to the clinic. With the ulcer on the lip still present, clinical and roentgenological examinations of the thoracic organs were negative, and no manifestations of tuberculosis could be discovered elsewhere in the body. A rapid change in the lip ulcer was brought about by general ultraviolet irradiation and a complete change in diet without local treatment. It became transformed into a bluish scar at the end of two weeks. The course of the entire disease speaks in favor of primary tuberculosis.

Epidemic of Infectious Erythema. P. Kissinger, Munchen. med Wshnschr. 75:1381. (Auf. 10) 1928.

The author writes that nine of the ten cases reported by Kissinger occurred in a home for children threatened by tuberculosis. The patient in the first case appeared four and one-half weeks after the latest admissions to the house, which had fifty-one inmates aging from 4 to 14 years. There was, in this case a slight redness of the throat and swelling of the glands, in addition to the exanthem, fever, coryza, and conjunctivitis; fever appeared only twice again in the series of ten cases, and in most of the cases coryza, conjunctivitis, swollen glands, etc., were also absent. The eruption was, in most cases, on the cheeks and the extensor surface of the arm, where it appeared in garland form. In some cases the eruption resembled measles, in others erysipelas; there were no complications, and in one case only, the illness lasted longer than a week. One case occurring outside the institution was in a 4 year old child who had not come into close contact with the children of the institution. All the patients except one were girls, and all had drunk raw milk.

Generalities Concerning Fungus Diseases of the Skin. II. Memoir: Trichophyton Violaceum. R. Sabouraud, Ann. de dermat et syph. 9:769 (Sept.) 1928.

In the first memoir of Sabouraud he considered favus; in it he discussed infection with *T. violaceum*, because this organism seems to be widespread geographically and responsible for more cases than any other fungus of like order. It is uncommon in France; but was one of the first fungi to be described by the author in 1892-1895.

The author states that it is a true endothrix; that a hair invaded by this parasite becomes fragile, so that when it is a case of the scalp the hairs are broken off practically at the cutaneous surface, and the "black dot" clinical type is produced. Tinea capitis caused by this organism may persist into adult life; all of Sabouraud's cases in the adult have been due to this organism, which explains the many cases of adult tinea capitis reported in Russia where *T. Violaceum* is a common organism. The author has rarely encountered this fungus in the beard, but it is said to be fairly common in this region in other countries. Its invasion of the nails is rarely observed in France, though frequent in other Mediterranean countries. Russian authors have, of late described extensive, figured, and marginate patches produced by this parasite. Sometimes cases of deep abscess formation, lymphatic and even osseous invasion have been ascribed to this organism.

Sabouraud studied a culture of *Achorion violaceum* sent him by Bruno Bloch (who first isolated that *Achorium*) and concluded that it was doubtful that Bloch's organism was a true *Achorion*.

T. Violaceum has many other peculiarities and features sharply differentiating it from other Trichophytions, so much so that Sabouraud thinks it might be justifiable to take it out of the Trichophyton group and designate it *Erythrophyton*.

Scleroderma and Calcinosis. R. H. Durham, Arch. Int. Med. 42:467, (October) 1928.

Fourteen cases of calcinosis associated with scleroderma or sclerodactylia have been collected and added by Durham to the nine cases reported in 1911, the author writes. In four of the eight cases of scleroderma and calcinosis, there was an accompanying sclerodactylia. In three cases of sclerodactylia with calcinosis, there was no recognizable scleroderma. The usual location of the calcinosis, the fairly characteristic type of deposit, and the close local relationship of the two conditions (deposits usually in areas of scleroderma), suggest that the combination of scleroderma and calcinosis constitutes a distinct pathologic entity, despite the infrequent occurrence. It is nowise clear whether calcinosis with scleroderma results from local metabolic alterations or deranged inorganic metabolism. As in other types of pathologic calcification, the colloidal proteins are thought to play a prominent role, the author states.

Relative Low Humidity of Atmosphere and Much Sunshine, as Causal Factor for Great Prevalence of Skin Cancer in Australia. H. Lawrence, M. J. Australia, 2:403 (Sept. 29) 1928.

Skin cancer is said to be a very prevalent disease in Australia and is, relatively speaking,

more common in Australia than in England or European countries. Lawrence's experience has been that the number of cases coming under the heading of the epithelial triad (keratosis, rodent ulcer and epitheliomas) certainly suggests that this condition of skin cancer is quite a serious matter in Australia. The author writes the percentage of incidence: rodent ulcer, 6.28; keratosis, 4.38; and epitheliomas, 1.975, or a total percentage of 13.23. Lawrence, as others, believes that the relatively low humidity of the atmosphere in Australia probably favors the irritating effects of the solar rays in the production of keratoses, rodent ulcer and epithelioma. The humidity of the atmosphere of Australia is as low as 30, 40, 50, and 60 per cent for the greater portion of the continent and remains so for a large part of the year.

Causes and Treatment of Alopecia. R. Habermann, *Deutsche med. Wshnschr.* 54:1560 (Sept. 14) 1928.

The author states that in a large number of animals of various kinds, Habermann found that a preparation of cholesterol was more effective in promoting the growth of hair than petrolatum, with or without cholesterol, or dry massage. In some instances pure alcohol seemed to check hair growth. The loss of hair from thallium poisoning could be prevented by the cholesterol preparation. Applied with a soft brush, the effects of the treatment in thirty-five patients with alopecia seborrhica were highly favorable. The subjective symptoms disappeared, the production of scales and of sebum on the scalp diminished. In most cases there was also increased growth of hair. A distinct increase in the cholesterol content of the hair could be determined. In hair that was starting to turn gray, the amount of pigment was increased.

BOOK REVIEWS

Treatment in General Practice. By Harry Beckman, M.D., Professor of Pharmacology, Marquette University Medical School, Milwaukee, Wis. Octavo volume of 899 pages. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$10.00 net.

More than half a century ago the term "Therapeutic Nihilist" was coined. It applied to a schism in the medical profession who had little or no belief even in the proper administration of indicated drugs. Perhaps there was never in any profession a set of men so skeptical as to the effects of drugs, so self-poised and self-centered in their superior attitude as to the use of various drugs. So, relatively, we have had few volumes dealing strictly with medical practice and the treatment of medicine and border-line cases. The general practitioner has been neglected. It is believed that Dr. Beckman offers a very unusual and able aid to the general practitioner. The writer feels that this volume deserves a place in the library of each physician and surgeon.

The Surgical Clinics of North America. (Issued serially, one number every other month). Volume 9, number 6. (Lahey Clinic Number—December, 1929). 188 pages with 51 illustrations, and complete index to Volume 9. Per Clinic year (Feb-

ruary, 1929 to December, 1929). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London.

This is strictly a "Lahey" issue. Dr. Lahey stands today as one of the world's foremost exponents and directors of surgical problems. Of immediate interest to the surgeon this issue contains a few articles of profound interest to the surgeon. They are: "Vascular Depression of Spinal Anesthesia," "Clinical Impressions of Two New Anesthetics: Sodium Amytal and Avertin," by Lincoln F. Sise. "Choice of Anesthesia," by Lincoln F. Sise and P. D. Woodbridge. The contributions of Dr. Lahey consist of "Apathetic Thyroidism as Distinctive to Activating Thyroidism"; "Primary Hyperthyroidism in Children"; and "Notes on Appendicitis—Chronic and Acute."

Howard M. Clute presents an article on "Diagnosis of Substernal Goiter," and Robert L. Mason presents one on "The Control of the Blood Supply in Subtotal Thyroidectomy." This is a remarkably good issue of the various clinics.

Research and Medical Progress and Other Addresses, by J. Shelton Horsley, M. D., Attending Physician, St. Elizabeth Hospital, Richmond, Va. Cloth, 208 pages. Price \$2.00. C. V. Mosby Company.

This volume is a collection of addresses delivered by one of the most active and able surgeons of the United States. The volume contains fifteen chapters, not only upon perplexing surgical problems but upon many problems affecting surgeons. It is an inspiration to read Dr. Horsley's statements upon surgical problems and upon the proper attitude of surgeons on surgical cases.

A Textbook on Orthopedic Surgery. By Willis C. Campbell, M.D., F.A.C.S., Professor of Orthopedic Surgery, University of Tennessee, College of Medicine, Memphis. Octavo volume of 705 pages, with 507 illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$8.50.

During the last fifteen years Dr. Campbell has become one of the authorities on orthopedic surgery in the United States. His orthopedic service is a mecca for surgeons and patients afflicted with orthopedic conditions. Personally he is beloved and respected by hundreds of physicians who are acquainted with his earnest endeavors to better that most intractable set of conditions presented by the orthopedic patient.

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NARCOLEPSY FOLLOWING EPIDEMIC ENCEPHALITIS

Gordon R. Kamman, St. Paul (Journal A. M. A., July 6, 1929), reports a case of true symptomatic narcolepsy following an attack of acute epidemic encephalitis in which all forms of treatment have failed. The patient had an attack of "influenza" lasting for about five weeks, during which time she had headache and some fever, and was unusually drowsy during the day but could not sleep at night. She recovered from the acute attack—which in all probability was acute epidemic encephalitis—but since then has been troubled with diurnal attacks of involuntary sleep and periodic loss of muscular tone resulting from emotional stimulus. The patient complained of muscular stiffness, tremor of the hands, almost constant headache, extreme irritability, restlessness and insomnia. Neurologic examination revealed a moderate hypertonus of all the muscles, the right pupil slightly larger than the left, slight weakness of the right facial nerve, a fine tremor of both extended hands, some dysmetria of the right arm, and exaggeration of all deep tendon reflexes. Blood pressure, urinalysis and blood studies gave normal observations. The blood Wassermann reaction was negative. The patient has had about every conceivable form of treatment without avail. Diet, internal glandular therapy, sodium salicylate, belladonna, stramonium, acriflavine and various sedatives all have failed to give relief.

DIAGNOSIS OF EARLY UTERINE CANCER

Emil Novak, Baltimore (Journal A. M. A., March 16, 1929), stresses the fact that simple pelvic examination is not sufficient in making the diagnosis in many cancer cases. The physician should, in all suspicious cases, see that cancer is ruled out. This will mean biopsy in suspicious lesions of the cervix, diagnostic curettage in suspicious bleeding from the uterus. If early cancer of the cervix is found, the patient has at least a fifty-fifty chance for cure. If early adenocarcinoma of the uterus is found, her chances should be about two out of three. Any physician can diagnose late cancer, but physicians should familiarize themselves with the clinical appearance of early cancer and of cervical lesions that are to be regarded with suspicion. Even if proved benign, such lesions are important predisposing causes of cervical cancer, and their correction, usually very easy, does much to protect the patient from cancer. The danger of biopsy, if any exists, is far more than counterbalanced by the

life-saving information it often yields. There is no other way of making the diagnosis in the early stages of the disease. The same statement may be made with regard to diagnostic curettage in suspicious bleeding of intra-uterine origin. Neither biopsy nor diagnostic curettage is of unqualified value, however, unless combined with competent pathologic examination. The ideal is of course, that the surgeon himself should be a good pathologist. Although there is much discussion of the bearing on cancer mortality of such factors as the method of treatment and the histologic classification of the tumor, the fact still remains that the most important single factor is the duration of the disease. Hence the basic importance of biopsy and diagnostic curettage which are essential in the recognition of the really early stage.

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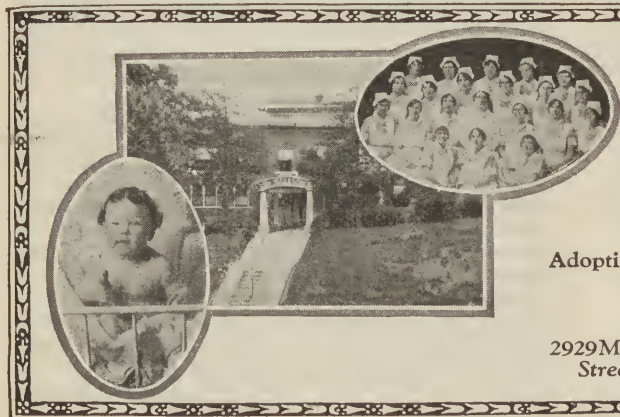
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LUDWIG'S ANGINA*

J. F. PARK, M.D., F.A.C.S.
MCALESTER

Ludwig's angina, acute infectious submaxillary angina, or diffuse suppuration of the floor of the mouth are some of the names given to a septic, necrotic, gangrenous process involving tissues beneath the tongue and mouth.

Notice was first attracted to this condition in 1836 by Ludwig of Stuttgart who called it "gangrenous induration of the neck," describing an inflammation of the cellular tissues beginning around the submaxillary gland with invasion of the neck and the floor of the mouth. He summarized its characteristics as an insignificant inflammation of the throat which soon subsided, with a supervening peculiar wooden hardness of the cellular tissues, a hard swelling under the tongue, a well defined border of hard edema in the neck, and the absence of disease of the glands despite the involvement of the surrounding tissue. Immediately an active controversy arose as to whether or not this is, as Ludwig claimed, a distinct entity, or merely a phase of cervical suppuration. The most noteworthy discussion of the subject was in the French Surgical Society in 1892—Nelaton and Delorme taking opposite views—the former denying it a place as a distinct disease, whereas Delorme supported the views of Ludwig. As late as the present year Ashhurst in presenting a report of 18 cases of Ludwig's angina treated at the Episcopal Hospital of Philadelphia from 1905 until 1929, seems to have felt it necessary to again emphasize the fact that Ludwig's angina is a true clinical entity. He stated that the condition is an acute inflammatory process involving the cellular tissues of the floor of the mouth and of the submaxillary region of one or both sides of the neck—a true cellulitis to be distinguished from lymphangitis and lymphadenitis, but that the lymph nodes might become involved secondarily. He also calls attention to the fact that lymphadenitis and lymphangitis always arises from surface lesions in the skin or mucous membrane, whereas cellulitis is due to infection arising in the cellular tissues themselves and spreading by direct continuity instead of by the lymphatics. T. Turner Thomas in 1908, proved by anatomical studies that connective tissue in the submaxillary fossa is directly continuous with the floor of the mouth, and that in Ludwig's angina the spread is along the planes of connective tissue.

Regardless of one's views as to the etiology, a fairly constant picture presents itself. The patient suddenly becomes septic, has a moderate elevation of temperature, rigors, mental depression, and distressing respirations. The tissue between the body of the lower jaw and hyoid rapidly becomes swollen, tense, tender and edematous, the tongue is pushed up against the roof of the mouth and cannot be protruded, there is dribbling of saliva, and the breath soon becomes peculiarly foul.

Due to the rapid necrosis of the deep tissues, especially the larynx, the prognosis is grave; not from the toxemia, but in most cases from acute edema of the glottis with sudden death, or in the more prolonged cases from septic pneumonia. The mortality ranges around 50 percent. Thomas collected 106 cases with death in 43, and Da Costa reports 4 cases with 2 recoveries; but in Ashhurst's review of the series previously mentioned there were 5 deaths in 18 cases. My experience with this condition is limited to two cases. One case treated several years ago, and whose history is not available, was operated upon and died from acute edema of the glottis soon after return to his room. A short abstract of a more recent case illustrating most of the points brought out will follow.

TREATMENT

The futility of conservative treatment

*Read before Southeastern Oklahoma Medical Association, McAlester, Oklahoma.

is self evident, and radical procedure is always indicated. An incision is made below the body of the lower jaw—on both sides if necessary—and the deep structures are penetrated by the Hilton method, traversing the submaxillary space, passing behind the body of the mandible, and then penetrating the floor of the mouth or ending just beneath its mucous membrane. Rubber tube drainage is established. This may be supplemented by a submental incision in the midline passing behind the symphysis. Hot, moist dressings, supportive treatment, and possibly a croup tent with moist medicated air are indicated. It is essential that one be prepared to do a quick tracheotomy from the time the patient is taken in charge until forty-eight or seventy hours following the operation, and especially is this true during and immediately subsequent to the operation.

CASE REPORT

Case No. 15145—Oklahoma Hospital, Tulsa, male, 17 years of age with a history of having had the second right molar tooth extracted two days before admission, following which he developed a temperature of 100.5 degrees, pulse 88, general malaise, pain and swelling in the right submaxillary region, but history was negative for chills, rigor, sweating, etc. Previous medical and family histories were irrelevant. On examination it was found that the second right lower molar had been removed and from its cavity exuded a thin, yellow, purulent exudate, together with marked gingivitis. From the inferior border of the right mandible downward to just above the clavicle, and from the angle of the jaw to near its symphysis on the right, was a hard, indurated, boardlike tumefaction, most marked and most tender over the submaxillary fossa. There was no appreciable increase in local temperature, and no discoloration, fluctuation nor pulsation. The sublingual tissue was edematous, pushing the tongue upward and backward toward the pharynx. Dribbling of saliva was constant, breath fetid, and patient could not close the mouth nor protrude the tongue. Respiration was labored, facies apprehensive, and there was marked hoarseness. Under nitrous oxide anesthesia a 4 cm. transverse incision was made below the inferior border of the mandible down through the deep fascia, and passing behind the mandible the fibres of the

myo-hyoid muscle were separated and the submucosal region of the floor of the mouth entered by finger dissection, evacuating a great amount of black exudate. Rubber tube drain was inserted through the cervical wound upward to just below the mucous membrane. The musculature was greyish black, edematous, and infiltrated with a black hemorrhagic exudate. During operation patient ceased breathing but was resuscitated after some anxious moments. Laboratory report: "streptococci and staphylococci." Two days following operation temperature reached 102 degrees after which it rapidly returned to normal, and the patient was discharged on the seventh postoperative day with a small discharging sinus.

SUMMARY

1. Ludwig's angina is a true clinical entity.
2. The process extends by continuity and via the planes of connective tissue.
3. Lymphangitis and lymphadenitis when present are secondary manifestations.
4. The clinical picture is fairly constant.
5. Conservative treatment is futile.
6. The mortality rate will be lowered if proper radical treatment is instituted upon establishing the diagnosis, and if an armamentarium is readily available for quick tracheotomy if the occasion demands it.

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—O—

PRIMARY REPAIR OF THE CERVIX UTERI LACERATED IN LABOR

T. H. MCCARLEY, A.B., M.D., F.A.C.P.
MCALESTER

Most all lacerations of the cervix result from childbirth and most all parturient cervixes are lacerated. The only immediate condition of consequence caused by cervical laceration is hemorrhage, which fortunately is rarely so copious in amount as to be serious. The later pathological conditions include eversion of the mucous membrane (ectropion), hypertrophy of the

lips, erosion and cyst formation of the Nabothian glands. Ectropion and erosion predispose to irritation and inflammation of the cervical glands with resulting leukorrhea. The hypertrophy of the lips which is usually associated with the ectropion and erosion increases the weight of the uterus and some degree of prolapse is commonly present. The patient so afflicted as the result of her labor or labors, complaining of a sense of weight and pelvic pressure, backache, leukorrhea and possibly sterility and reflex nervous manifestations, is a familiar type. Of more serious import is the fact, as stated by Graves, that "cancer usually originates in one of these lacerated, everted cervixes."

Acceptance of the above statements as correct, I am convinced that they cannot be successfully contradicted, imposes the obligation on the obstetrician that he make every effort to prevent cervical laceration and that he repair it when it does occur. I shall not discuss means of preventing tears of the cervix but the treatment of them.

I have had no experience with the secondary repair on the fifth or sixth day as advised by Hirst or on the tenth day as practiced by Coffey. De Lee states that his experience with the secondary suture has been unsatisfactory. Capillary oozing is always troublesome and the tissues are brittle and stiff. Furthermore, it would seem to be asking a good deal of the patient to submit to an operation requiring an anaesthetic during her puerperium. Where deliveries are made in the home, it seems to me that unless severe hemorrhage occurs, which we suspect originates in a lacerated cervix, it is best not to make an effort to examine the cervix following delivery. The difficulty of maintaining a rigid aseptic technique and getting a good exposure in a good light militates against examination of the cervix immediately post partum under these circumstances. This was my practice until the establishment of a delivery room about four years ago at Albert Pike Hospital. Here, with the patient on a suitable table, with proper exposure and light and where a rigid aseptic technique is maintained, I have exposed the cervix of every patient I have delivered there. He who has not inspected the cervix post partum will be greatly surprised at its appearance. Potter says it looks like a plowed field, adding that the

cervix following his method of delivery by version is in better condition as a rule than that following spontaneous delivery.

The following is the technique I have used. At the completion of the second stage of labor under gas-oxygen or ether anaesthesia, pituitrin 0.5 to 1 cc. is given. As soon as the placenta has been delivered, a weighted speculum is placed in the vagina and one or two pliable specula are used by the assisting nurse to retract the lateral walls of the vagina. The cervix is grasped with sponge forceps, which are preferable to vulsella because they do not traumatize the tissues. If there is evidence of chronic cystic infection and hypertrophy of the endocervix, such tissue is removed with a sharp curette or scissors. Tags of muscle or mucous membrane, if present, are cut off and the one or more lacerations sutured with chromic catgut. A continuous locked stitch is used, penetrating to, but not through the endocervical mucosa.

In this comparatively small series of cases, there has been no infection and the results have been satisfactory. Examination has been made in about 75 percent of the cases four to six weeks later and the condition of the cervix has been found to be such as to warrant me in continuing the practice of primary repair.

TREATMENT OF COMPOUND FRACTURES*

F. L. WATSON, M.D.
McALESTER

The wounds of compound fractures can be roughly divided into two groups, those produced from within out and those from within in.

Wounds produced from without in are more apt to be contaminated, and the damage to the various tissues is greater than those produced from within out.

Consequently there is greater possibility of infection following such a wound.

No standard type of treatment can be used for the wounds of all compound fractures.

The indications for treatment of compound fractures are reduction of the fragments with as little trauma as possible,

*Read before the Southeastern Oklahoma Medical Association, McAlester, Oklahoma.

removal of contaminated and devitalized tissue, the elimination of dead space and the prevention of infection spreading into the wound from the surface.

In the simpler types, cleansing of the skin, sterile dressing, and immobilization is sufficient. In those with more severe wounds, the above condition can be brought about best by immediate reduction of the fracture, thorough cleansing and cautious debridement of the wound, obliteration of dead space by means of traction and prevention of surface infection by Carrel Dakin treatment.

In those cases in which infection has been prevented and in which it has been possible to cover the bone with soft parts, union at times takes place as in simple fractures.

In fractures compounded from within, the wounds are usually small and made by a spicule of bone penetrating the skin; those compounded from without are usually caused by some crushing or penetrating force which is carried to the bone.

In the first type a sterile dressing is placed over the wound and the skin is cleansed with gasoline for a distance of 12 inches, shaved, painted with 6 percent picric acid in alcohol, and covered with sterile dressings. After this the case may be treated as a simple fracture.

In cases of the second type the injury to the vascular structure may be so great as to demand immediate amputation but in those in which the vessels escape injury other treatment is usually possible, except in the lower extremity where sometimes an artificial foot would be more servicable than the wreck of a foot left.

Inoculation with antitetanus serum is wise in all cases. It is necessary first to combat shock by hypodermic injections of morphine, the application of heat by means of hot water bottles and blankets, and the administration of stimulants such as hot coffee and of fluids and glucose by the Murphy drip.

As soon as it can be done safely an anesthetic is administered, and the limb examined and cleansed.

In the more extensive wounds no attempt at primary suture is made. The wound is examined for the removal of foreign bodies, loose, non-viable tags of muscle, and fascia.

Loose and comminuted fragments of

bone should not be removed unless they are practically extruded from the wound and completely separated from all sources of blood supply.

The extensive removal of these fragments is a very frequent cause of non-union. Drains of rubber tubing may be inserted and irrigation continued every three hours. If properly splinted with splints of the Thomas pattern, the wound will heal well. After two weeks of adequate drainage and irrigation secondary suture is possible in a fair number of cases.

Whenever possible the wounds are enlarged to take advantage of gravity drainage. When this is possible, pockets of discharge are prevented by constant irrigation or the use of ordinary suction apparatus.

Adequate and early splinting tends to lessen shock, prevent further injury, limit sepsis and secure comfort. It has for its objects (1) proper alignment, (2) recovery of the original length of limb, (3) immobilization of the joints above and below the fracture, and (4) easy access to the wounds.

Splints depend for their efficiency on the principle of extension. In the hospital the Thomas splint may be supplemented by the use of the Balkan frame and Hodgins's splint.

The chief causes of non-union are, first, gaps due to loss of substance of the bones from the early removal of the comminuted fragments; and second, faulty apposition due to the interposition of muscle or fascial structures.

Comminution increases callus formation and the probability of union.

Under aseptic conditions bones not properly approximated may be brought into line by splinting with extension, the removal of intervening tissue, and fixation with heavy kangaroo tendon inserted through drill holes in the fragments.

Fixation of fragments in septic fractures by steel plates or bands has in my hands proved harmful.

The non-union resulting from failure to remove fibrous tissue separating bone-ends is best treated with an autogenous bone-graft approximately a year after all sinuses have healed.

Plaster of paris splinting must be maintained for three months before healing

can be expected. Failures are usually due to sepsis, poor approximation or faulty splinting. After perfect healing a prolonged course of massage should be employed to hasten recovery of function.

Neglect to follow up these cases is responsible in large measure for the long periods of disability.

Grimault states that every complicated fracture disinfected sufficiently to permit complete primary suture is amenable to treatment by osteosynthesis if this is necessary.

If drainage or incomplete suture is indicated because of doubt regarding the surgical disinfection, or to hold temporary reduction, delayed osteosynthesis may be done after from eight to fifteen days.

In infected fractures osteosynthesis should be done only when reduction and union is impossible by other methods.

When there is a choice of methods, metallic fixation and periosteal detachment should be restricted as the last resort.

When the fracture has consolidated it is not necessary to remove the metal unless a fistula develops or there is redness of the skin or sharp pain on pressure.

When a complicated fracture treated by excision, osteosynthesis and primary suture becomes healed by primary intention without any local inflammatory reaction, its course is that of a closed fracture treated by osteosynthesis.

When there is local infection after a complicated fracture treated by osteosynthesis has become consolidated, rarefaction of the bones around the wire is rare, and when it occurs will not disturb consolidation, but may have to be cleansed to hasten recovery.

In his pleas for more conservative treatment of the bone injury in compound fracture W. G. Stern states (and I thoroughly agree with him) that there are two vital factors to be considered: first, the injury to the soft part; and second, the injury to the bones. When the injury to the soft parts is not so severe that the fracture is merely an incident in the crushing and mangling of a limb the immediate treatment of the osseous injury can be advantageously begun, and it is Stern's opinion that the strictest conservation, the avoidance of all operative measures on the bones and the reduction

of all manipulations to an irreducible minimum, followed by accurate splinting and absolute immobilization for a period corresponding at least to the danger period for possible infection, will be followed by the least infection, the least interference with the blood supply, the least number of cases of osteomyelitis and non-union, and the best and quickest recoveries.

In the soft tissue besides hemostasis, cleansing and anatomic rearrangement of parts, only a few sutures should be used, and the muscle bellies and the fascial planes should not be tightly sutured. The usual cleansing technique is as follows:

The surgeon is gowned, masked, and gloved as for a major operation. The limb which has previously been shaven, is thoroughly cleansed with ether on a sterile sponge held with sponge-holder. The parts are draped with sterile sheets and towels, and the skin and wound painted with 6 percent picric acid in alcohol. The protruding ends of the bones are also cleansed with the picrate and then with gentle traction and manipulation, are reduced. When the opening in the skin is not large, and difficulty is experienced in reducing the fragment, they may be shoved back with a blunt instrument or the gloved finger.

It is better to enlarge the skin wound with a pair of scissors (the other tissues being separated when necessary by blunt dissection) until manipulation and traction are effective in reducing the fragments, after which the skin is to be loosely closed, enough space between the sutures being left for the escape of wound secretions into the dressings.

Do not overdo debridement, it is often overdone. In twenty-five year's experience in mining districts I have seen few cases in which typical or extensive debridement was indicated.

After the reduction of the fracture and the closure of the skin, the wound is to be covered with sterile dressings and the limb securely immobilized. Some surgeons prefer immobilization in the modern extension splints where practicable but immediate fenestrated plaster casts and properly constructed pillow splints have their appropriate place. The patient is then placed at complete bed rest, quiet to be maintained by sufficient opiates and sedatives.

Complete rest is of utmost importance

in combating infection. The sedative treatment should be continued for at least a week, after which the further treatment for the healing of wounds and the complete reduction of the fracture can be undertaken as indicated.

Roentgenograms should always be taken, and if possible in bed. The worst results I have seen have been cases where the bones have been plated, wired, screwed, resected or otherwise operated on, or unduly manipulated promiscuously. Let me emphasize the importance of maintaining length and position in the treatment of compound fractures by fixed traction

By fixed traction is meant traction that is applied when the fracture is reduced and so immobilized or fixed in the immobilizing apparatus that it and the fractured extremity remain undisturbed and unaltered until at least preliminary healing has taken place. The technique is as follows, e.g., for compound fractures of the lower extremity, adhesive plaster traction straps are used, three inches wide and varying in length for fractures of the leg or thigh. The frayed ends of a strong pliable rope are tied or sewed into the distal end of the straps to be used for traction purposes. The straps are applied to both sides of the limb well up to the site of fracture, and bandaged into place with muslin bandages. The patient is anesthetized on a fracture table, if you can get one; traction is instituted by a muslin bandage about the foot, and the rope-ends are attached to the traction device by which a pull is made and continued until the limbs are of equal length.

The cast is applied in the usual manner, as low on the extremity as the ankle. After the plaster has sufficiently set, traction having been continuously maintained by the foot bandage, the traction ropes are cut from the holding device, turned back against the leg portion of the cast, and embedded in the cast by several turns of plaster bandage, thus anchoring them and maintaining traction.

When the plaster is set, the muslin bandage anchoring the foot is removed, and the foot is then wrapped in sheet wadding, and the cast applied with the foot at a right angle to the leg.

By immediate surgical toilet of the region, one will often be able to suture at

once, thus transforming the compound into a simple fracture.

Pearson concludes that the experience gained in the world war has taught surgeons that the majority of fractures can be efficiently treated by non-operative measures. A marked displacement of fragments does not necessarily indicate open treatment, as in many such cases reduction may be effected by manipulation, moulding and extension. Non-operative measures should be tried first in all cases. Operations are rarely indicated in old people or children, and the bones do not respond very well to operative fixation.

Extensive comminution of the fragments is also a contraindication to immediate operation. The best speech I ever heard on the treatment of fractures, was by E. W. Ryerson of Chicago, who said, "It was the application of common sense," and I would add to this an instinctive sense of mechanics.

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CERVICAL RIB

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The recognition of the incidence of cervical rib has been greatly increased since routine X-ray examination has become a part of all complete physical and laboratory examinations. In one of the large clinics of the United States, in a series of 540,413 new patients examined, there were 393 cases of cervical rib, representing an incidence of .056 percent. Of these cases, 84 were in males and 219 in females. In 143 cases were bilateral cervical ribs, in 70, a cervical rib on the right, in 91 a cervical rib on the left. Of these patients 55 percent were discovered accidentally and in 45 percent there were symptoms that lead to examination for this condition.

Gruber's classification is the one generally accepted and divides cervical ribs into four classes, depending on their length:

1. A costal process increase not reaching beyond the transverse process. (Cases under this group are not classed strictly as cervical ribs).

2. Extending beyond the transverse process, terminating in a free end or united to the first rib.

3. A longer rib than in Class 2 and attached to the first rib by a ligament.

4. Complete ribs.

The symptoms of cervical rib do not usually develop until the second decade and may appear as late as 55 or 60 years. Various reasons are given for the late appearance of the symptoms. The ossification of the rib with resulting increase of rigidity, traumatism, exemplified in the carrying of heavy weights in the hand or on the shoulder which would drag the extremity downward and so increase the tension on the lower nerve roots; poor muscular development or marked relaxation following a debilitating illness.

The symptoms are: (1) Pain and sensory symptoms. These are first intermittent and later may become constant and referred most frequent to the ulnar border of the forearm, the little and ring fingers. (2) Recurrent pallor of the hand and forearm. (3) Motor paralysis with atrophy.

The first motor symptoms are usually expressed by difficulty in carrying out some of the finer motions such as sewing or writing. Later, however, the extensors of the wrist and fingers are weak. Vascular symptoms begin in the fingers and spread up the arm as the arteries gradually become obliterated.

Tumor formation is the supra-clavicular triangle has been noted in some cases. This tumor is rather tender to the touch and on it sometimes may be felt the pulsating subclavian artery. This pulsation may be mistaken for an aneurysm. The symptoms referable to the face from cervical rib are usually overlooked. Eye symptoms have been reported by Osler as dilation of the pupil on the side affected. Schomebeck reports a case of the widening of the palpebral fissure with dilation of the pupil on one side. Myers reports one case which complained of numbness of both jaws and of the lower face.

With involvement of the first and second thoracic nerves there may be a resulting inter-costal neuralgia.

Of course, the final diagnosis is made by the X-ray. However, there are so many cases of cervical rib without symptoms, and some cases of the cervical rib syndrome without a demonstrable rib, that one should be constantly familiar with the picture to elicit unquestioned cases for operative treatment.

There have been three classes of operation described for the removal of cervical rib:

1. The anterior incision is made along the posterior border of the sterno-mastoid muscle.

2. The lateral incision in above and parallel to the clavicle and runs along the anterior border of the trapezius muscle.

3. The posterior, in which a vertical incision is made to the side of and parallel to the spinous process of the cervico-dorsal vertebrae.

In some cases it may be necessary to remove the supernumerary rib. However, an operation as described in the 1927 edition of The Mayo Clinic, has proved in my hands thoroughly successful, and I am going to call your attention to the details of this technique, believing that in most instances this will perfect a cure, and is not only technically simple but practically devoid of the many dangers which attend the radical operation of the complete removal of the rib.

An incision about two and one-half inches long is made parallel to the clavicle, beginning at the sterno-clavicular articulation and is carried down to the scalenus anticus muscle. Lying on this muscle will be found the phrenic nerve. This should be retracted inward and the insertion of the scalenus anticus into the clavicle completely severed. Care should be taken to avoid injury to the subclavian artery and the apex of the pleural cavity when the muscle is divided. The usual closure of the incision will complete the operation.

It will be apparent to each reader of this article that by removing the pressure of the scalenus anticus, a decompression procedure is perfected which will in most cases relieve all symptoms caused by this condition.

In support of this procedure, I wish to report the following case:

Case No. 2201—Mrs. C. R. Diagnosis: Bilateral cervical rib. Patient is housewife, age 38, giving a negative family history. Patient's past medical history shows her to have had no serious illnesses, having had the diseases of childhood without complications or sequelae.

Her present complaint dates back two years since which time she has suffered from periodical pain along the distribution of the branches of the brachial plexus. These symptoms have been gradually growing worse and have been more troublesome during the night. Many nights she has been unable to get her arm in a comfortable position and in spite of aspirin and local heat she has lost a great deal of sleep.

Examination of the head, including both neck and throat is negative. There is a slight enlargement of the thyroid, however, no symptoms of thyroid toxicity. There is a slight bulging on the right side of the neck about one inch above the clavicle and pressure over this location causes some discomfort. Examination of the chest and abdomen is negative. Pelvic examination except for an enlarged and cystic condition of the right ovary is negative.

X-ray of the thyroid and cervical region: Increased density is noted in area of the thyroid. There is calcific deposit in small quantity and not connected with the spine.

Supernumerary ribs left cervical and right cervical; verified in subsequent examination.

Diagnosis: Bilateral cervical rib with pressure on left side with no disturbance of circulation, but irritation of the brachial plexus.

Operation: Decompression operation.

Anesthetic: Ethylene and n_2O-O_2CO .

Gross findings: Bilateral cervical rib with pressure symptoms on left.

What was done: Incision through skin and platysma extending from costo-sternal junction of first rib outward and upward for 2 1-2 inches. Clavicular insertion of sterno-mastoid severed. Phrenic nerve isolated. Scalenus anticus insertion severed and sterno-mastoid repaired. Fascia closed with No. 1 plain and skin with horsehair. No shock or hemorrhage. Condition good.

PROGRESS NOTES

1st day: During the night there has been some discomfort in the left hand and arm; outside of that patient is comfortable.

4th day: There has been no disturbance along the nerves of the left arm since the first night. Patient sits out of bed.

6th day: Skin stitches removed; wound free from infection and thoroughly healed.

4 months post-operatively: There has been no return of any of the previous symptoms and it appears the patient is cured.

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TECHNICAL AIDS IN THE DIAGNOSIS OF PRIMARY ANEMIA

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In presenting this article, we make no claim to originality of work or to any new diagnostic procedure, but desire to present in a concise way, the technical procedures that will aid in making the diagnosis of pernicious anemia. These tests are comparatively simple and within the command of every physician, if he will only devote some time to development of technique. Neither will we attempt to present the physical findings that would aid in diagnosis.

Before presenting our subject, may we call your attention to a certain number of cases of primary anemia that do not show characteristic blood changes until late in the disease, being preceded by nerve changes, gastric changes and other physical changes that will aid in making the diagnosis. In fact, it is well for the physician to always keep in mind that the positive findings of the laboratory are more important, not to be misguided should the laboratory finding fail to coincide with the physical changes, in which case, he should correlate all symptoms and findings. Neither do we attempt to present the comparative value of certain tests in differentiating primary from second-

ary anemia, from any cause whatsoever, but merely to present the positive findings of pernicious anemia.

May we first list these procedures that will follow.

1. The blood count, with study of cells.
2. The volume index.
3. The blood platelet count.
4. Gastric analysis.
5. Bacteriological findings.

The accuracy of the blood count and the hemoglobin estimation is of extreme importance if diagnostic value is to be obtained. The hemoglobin determination with most physicians is usually obtained by one of the numerous color charts and a piece of paper that will absorb liquid. It has been our observation that this method is unreliable and that the error is so great that little importance should be attached to a hemoglobin obtained by this method. We find that the error will in some cases be as much as thirty percent. The most reliable method is the chemical determination by using the Van Slyke apparatus but this method is rather lengthy, is fraught with technical errors and is not practical for the physician. Two simple and fairly accurate methods are, with the Dare hemoglobinometer and with the Sahli. To arrive at the reading, three separate estimations should be made and then take an average of the three as a final result. The blood count is only valuable when a standardized pipette is used. In our work, we have found pipettes of different makes to vary as much as 15 percent. In counting the erythrocytes, two separate pipettes should be used and each counted in the usual manner and an average of the two used as the final count. Likewise, yet not so important is the counting of the leukocytes. Having accurately determined the number of erythrocytes per cubic millimeter and the percentage of hemoglobin, we obtain the color index by multiplying the first two figures of the red count by two and then dividing this figure into the hemoglobin. Our records show that 91 percent of pernicious anemia patients will show a color index above 1, while 99 percent of the secondary anemia patients will show a color index beneath 1. The interpretation is merely the fact that the total number of cells are decreased, but the individual cell contains more hemoglobin than the normal cell. Without some current infection,

which would mask the leukocyte count, we have found that the white count is low in pernicious anemia, often as low as 1500 per cu. mm. A study of the stained slide will require some experience to interpret. Much valuable information can be obtained. The presence of nucleated red cells gives no helpful differential points, it merely indicates a severe drain upon the bone marrow, present in severe primary or secondary anemia. The presence of megaloblasts is considered by most authorities of diagnostic value, certainly, many of these found in the circulating blood would materially aid in making a diagnosis. Polymorphonuclear leukocytes are greatly decreased, likewise the eosinophiles and basophiles are either decreased or absent. Myelocytes are occasionally found. A study of the individual cell is of much value, many irregular cells (poikilocytosis) are found, varying in size from the very small cell (microcyte), to the very large cell (macrocyte). To these large thickened cells an excess of hemoglobin is deposited and if seen from the side angle, they would appear to be bulging, instead of the usual concave-convex surface. These thickened cells also give us a high volume index as well as being responsible for the high color index.

It has been our observation that the platelets are either absent or greatly decreased in primary anemia. There are two methods of counting platelets. One, we use the red pipette and any one of the numerous diluting fluids. This method has its faults, failure to work with speed in collecting the blood, faulty fluid, and the time required for settling down of the platelets in counting chamber. The other method is to count the platelets on the stained slide, comparatively with the red cells, knowing the red count, you can easily determine the number of platelets.

The volume index is very valuable and should be employed as a routine procedure where primary anemia is, in the least, suspected. The principle of the test is simple, yet sound. If the individual cells contain more hemoglobin than the normal cell, the cell of the primary anemia patient would then be thicker than the normal cell. Not being practical to study or measure the thickness of the individual cell, several good methods have been devised, to measure the thickness of the cells, in quantity. First it is necessary to determine the mass thickness of normal

cells, under certain condition, the diluting fluid used, the method of packing the cells, etc. After determining the mass thickness of the suspected cells, taking into consideration the proportionate decrease in red cells of the anemic patient. For several years we have used Haden's method, using a graduated centrifuge tube. Recently we have been using the method described by Wintrobe in the *Journal of Clinical and Laboratory Medicine*, December, 1929. He recommends the use of a special tube and the advantages are the use of less blood, ease of operation and calculating the results. The interpretation of this test in short is the fact that individual cells of a pernicious anemia patient are thicker than normal cells and this test affords that determination.

The gastric analysis often affords the clearing of a diagnosis regarding primary anemia. In our experience, every patient with pernicious anemia has shown a complete absence of free HCl. Our routine test is the Ewald test meal, 400 cc, of water and one slice of plain, dry bread, removed one hour later. Fractional test meal, in this condition, has given us no information not obtained from the regular one hour meal and we have discarded the fractional meal because of the discomfort to the patient, when no added information is obtained.

Bacteriologically, we have found nothing of importance. We have endeavored to verify Torrey's work, where an increased number of bacillus aerogenes capsulatus of Welch are isolated from the intestinal tract. We have succeeded in a few cases, but our experience has not proven of value in making a diagnosis.

In concluding, we wish to stress the importance of accurate study of the blood and gastric contents. The tests are simple and within the realm of every physician and no case of primary anemia should go undiagnosed because the physician did not have a laboratory available. If he will keep in mind, a high color index, high volume index, decreased platelet and absence of free HCl from the gastric contents, he will have obtained the valuable data, so far as the laboratory diagnosis of primary anemia is concerned.

RELATION OF OTOTOLOGY AND GENERAL MEDICINE

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In discussing this subject, H. Newhart¹ states that the attitude of the average practitioner toward the subject of otology after graduation, or as soon as he finds compensating work in other lines, is usually one of passive indifference, if not one of confessed helplessness or even boasted ignorance.

That the general practitioner is not enthusiastically interested in otology is due largely to the failure of undergraduate schools to provide adequate instruction in this subject, with the result that the graduate in medicine is insufficiently prepared to cope successfully with even the ordinary ear disorders which fall very properly within his province. Another factor which has made otology unpopular has been the almost universal tendency of the laity and the profession to neglect all but the most obvious or painful ear affections, until it is too late for even the specially trained otologist to handle them with any possibility of seeming brilliant or satisfactory results. This tendency to neglect the ears is almost as common among the intelligent and well-to-do as among the indigent.

How poorly the profession has succeeded in the practical application of the first principles of modern otologic teaching and how great is the need for an awakening of interest in the subject are convincingly proved by the prevalence of ear diseases and the consequent impairment of hearing which exists at the present time.

The responsibility for the prevention of ear diseases, in common with all other beneficent movements for health reform, rests primarily with the medical profession, and his responsibility falls with much greater weight upon the man in general practice than upon the otologist; for it is the former who, through frequent and intimate contact with the many, is alone in a position to give help and advice at the time when it will be most productive of results.

While public interest has for a long time been actively concerned in the conservation of vision, and nearly all the states have laws to prevent ophthalmia neonatorum and to safeguard the eyes

against carelessness in industrial plants, and there exists numerous societies to promote the welfare of the blind, there has been a conspicuous absence of organized effort for the prevention of ear diseases, and only in the last few years have specific steps been taken in this direction. But we must acknowledge with pride the liberal provisions which have been made for the education of the deaf.

The situation as regards the prevention of deafness, however, is rapidly changing. The concern of all classes has of the last few years been aroused as never before to the need of bettering the physical condition of the individual; and in this fact lies our chief hope for a speedy improvement in the situation as regards the conservation of hearing.

One of the main causes of deafness is neglect of the physician to give or advise proper treatment, or neglect of the patient to take proper treatment in acute catarrhal otitis media and acute purulent otitis media.

Acute catarrhal otitis media: Treatment, the patient should be put to bed, or at least kept indoors. A mild aperient should be given. In children 1 gr. of calomel answers the purpose.

If there is coryzal rhinitis, that must be treated. Earache from acute catarrh is best combatted by the instillation into the meatus of the infected ear of Rx—Ac. Carbol dram 1; Glycerine Ad oz 1—warmed before use, and retained with a plug of warm wool in the meatus. The patient lies on the affected ear on a rubber hot bottle, a pad of wool being interposed to mitigate and regulate the heat. Sweet oil and laudanum should never be used on account of the micro-organisms in the sweet oil which would infect the middle ear in case the ear drum should rupture.

If this fails, however, and if the membrane is seen to be red and bulging, it should be incised lest suppuration should develop, but if there is bulging without redness and without pain, the catheterization of the eustachian tube will probably suffice, in adults at all events, to relieve the symptoms.

When the ear disease has been cured, attention should be directed to the nasopharynx (adenoids), nose (chronic rhinitis), turbinal hypertrophies polypi, sinus suppurations, deflected septum, and phar-

ynx (tonsils), so as to prevent a recurrence of the disease.

In the discharge of his obligations to the public in the field of otology; the medical man must help to combat certain popular fallacies regarding the ear, some of which, unfortunately, lurk as superstitions in the minds of not a few of the professions itself.

I refer among other things to the prevailing attitude toward operations on the mastoid. Many lives are sacrificed annually because of a traditional, but groundless fear as to the results of such operative procedures. The indications for operations are now so well understood that, both to avoid complications, and to preserve the maximum of hearing, when once the conditions demanding operation are recognized, no time should be lost.

The almost universal neglect of chronic suppuration of the middle ear may be regarded as a serious indictment of the intelligence of the physician as regards his comprehension of modern views on the surgery of the ear. It is a well established principle that, with but a few exceptions, every chronic suppurating ear which does not yield in a reasonable time to careful treatment should be given surgical care in the form of a radical mastoid operation, but only at the hands of a skilled surgeon. The operation thus performed involves so little risk that this is negligible compared with the ever present danger from endocranial complications, the certainty of a progressive loss of hearing and the possibility of serious remote effects from the focal infection within the temporal bone.

This article does not advocate that every man in practice should qualify as a specialist in otolaryngology. It does, however suggest the question: To what extent may the general practitioner invade the special field of the otolaryngologist? The obvious answer is that the man in general work, if he would meet the urgent needs of his practice and discharge his just obligations to the public, must be prepared to give better service in the line of otolaryngology than in the past. His activities, however, must be strictly confined within the limits of such procedures, as he is qualified safely and intelligently to perform, and should never be extended to the point of assuming responsibility beyond his skill. Moreover, the scope of his work must depend in each case upon his indi-

vidual training and upon the geographical location of his practice as regards accessibility to men of more highly specialized training than he himself possesses.

The passing of ear diseases and of deafness within the life period of one generation cannot be hoped for by even the most optimistic, but through a generous cooperation on the part of the general practitioner and the otologist and the utilization of every educational and other agency engaged in a crusade for better hygienic conditions, we may hope to see with a single decade a great reduction in the number of those destined to be afflicted with ear diseases.

EPIDEMIC CEREBROSPINAL MENINGITIS — A HEALTH OFFICER'S VIEW.

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As the name implies, this form of meningitis occurs epidemically, and due to the specific organism, the diplococcus intracellularis. Its first appearance in the United States was 1806, and since that time epidemics have occurred in all parts of the country.

The organism is of the slight viability on all media, the best being agar, to which has been added sheep serum, and two percent glucose; cultures are kept alive five or six days in this media. Freshly isolated cultures are more virulent than the ones artificially grown.

The organism is supposed to gain entrance to the system through the nasal mucous membrane and through the upper respiratory tract to the blood stream, or a direct infection through the lymph channels.

There is no doubt that the nasal mucous membrane is a carrier, and the fact that the organism is present in the naso-pharynx of healthy persons, shows how the disease may be transmitted by carriers who never develop the disease.

Cerebrospinal meningitis has no respect of age, as children and adults are stricken alike. Rotch reports a case in an infant twenty-four hours old.

The pathology of this disease shows an intense hyperemia of the meninges of

brain and cord, which is followed by an exudate of thick seropus. The entire surface of the brain and cord is covered with this exudate, which also extends in the fissures of the brain, and between the pia and cortex, and the ventricles may contain a large amount of fluid.

The meningococcus is found in the cells and exudate, and larger numbers of polymorphonuclear neutrophils, than lymphocytes are found. There is a high leucocytosis.

The organism is a gram-negative, biscuit shaped, and like the gonococcus chiefly contained in pus cells.

SYMPTOMS

The onset as a rule is abrupt, but the diagnosis cannot be made on first day of illness. Vomiting, followed by chill or rigors and high temperature, and very often convulsions, are among the early symptoms. Headache is constant and often agonizing, there is pain in back of neck, and early delirium is frequent. Backward retraction of the head and back occur early with rigidity of neck.

The vomiting at this stage is projectile in character, and the whole picture is one of an overwhelming infection from the very beginning. Fever ranges from 102 to 104 but may go very much higher. Reflexes are exaggerated. One of the most characteristic symptoms is the development of an eruption of the body, at first hemorrhagic in character, and later resembles large bruised-like areas. Herpes is found on lips and face. Kerings' sign is usually present, also Babinski reflex; coma may develop early. Otitis media is sometime present as result of an early infection of the middle ear. Purulent conjunctivitis is often present, also corneal and conjunctival anesthesia, muscle soreness, especially in the lumbar, erector spinae, thigh and upper arm muscles.

Several types of the disease are seen in the same epidemic, the rapidly fatal cases, which die within two or three days, or even less, within eight to ten hours. The milder cases, in which the symptoms are not nearly so severe, and those cases which are very mild and of short duration.

Prognosis under former methods of treatment varied in different epidemics. Mortality was from sixty to ninety percent, while now under the serum treatment the mortality is from nineteen to

forty percent, hence early diagnosis and treatment are very necessary. Diagnosis is best cleared up by use of lumbar puncture and examination of the cerebrospinal fluid for the specific organism and the occurrence of a second or third case in a vicinity is often sufficient to make a positive diagnosis.

TREATMENT

The serum treatment is the only one which offers any hope of cure. The average dose of serum should be from twenty to thirty cc. and the first dose of serum should be slightly smaller than amount of fluid which has been removed. The serum treatment should be repeated about every twenty-four hours until four to five doses have been given, or until the meningococci has disappeared. The serum is harmless and has brought about a decided reduction in mortality of the disease—from eighty to thirty percent. Lumbar puncture should be performed in every suspicious case at once, and if the fluid is turbid, twenty to thirty cc. of warm serum injected.

The fluid withdrawn should be examined for the organism, and if found, the injection repeated daily until symptoms are improved. The injection should be made very slowly by gravity, the serum having previously been warmed to a few degrees above body temperature, and due probably to the elasticity of the tissue in children; they can be given practically as large doses as adults, and even in infants the doses are much greater than in proportion to the body weight.

Some discomfort is often noted toward the end of the injection, and this, if very severe, is a signal for stopping, and since the amount which can safely be injected is limited, however, every effort should be made to allow this to be maximal, by withdrawing as much fluid as possible, and by proceeding with injection gently and carefully. At the conclusion of each injection, the foot of the bed may be raised six to eighteen inches for three hours to allow the serum, which is of a higher specific gravity than spinal fluid, to gravitate toward the cerebral meninges, and for three hours before puncture is made, the head may similarly be raised to facilitate the denser exudate seeking the subarachnoid interstices of lumbar region.

In cases where you are in doubt, but almost sure that you are confronted with

the disease, and can not get the serum for several hours, a lumbar puncture will relieve your patient and may save his life, but give the serum as soon thereafter as possible. Symptomatic treatment consists of free purge, bromids, hypnotic, etc.

History from five cases of personal observation:

Case No. 1—Child, three years of age, had been sick forty-eight hours, head drawn back, neck stiff, coma, etc. Lumbar puncture made, fluid withdrawn, serum given, for four doses twenty-four hours apart. Child recovered but totally deaf.

Case No. 2—Boy, nineteen years of age, sick eighteen hours, lumbar puncture, fluid withdrawn, serum given, died fourteen hours later.

Case No. 3—Boy, nine years of age, sick ten hours; lumbar puncture made, fluid withdrawn; died one hour later.

Case No. 4—Man, thirty-three years of age, sick six hours; died.

Case No. 5—Boy, seven years of age, sick twelve hours; lumbar puncture, fluid withdrawn; serum given, repeated every twenty-four hours for four doses; died on fifth day.

I wish to call to your attention that more males have the disease than females.

Lumbar Puncture: The patient on side with head and shoulder elevated, and slightly bent forward, putting the tissues of the back on stretch. This position favors the flow of fluid. A general or local anesthetic can be administered if desired. The puncture is made with ordinary aspirating needle, or small trocar; the space between the third and fourth, or fourth and fifth lumbar vertebra. The iliac crest is on level with fourth spinous process.

The question of control of epidemics is a most important one. Strict quarantine of all cases should be maintained, and the nasopharyngeal secretions of recovering cases carefully examined and all contacts examined before being released.

X-RAY OBSERVATIONS IN LOW BACK INJURIES

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Any effort to promote a better understanding about injuries occurring in the lower back is likely of interest to surgeon and radiologist alike; and, for this reason, I desire to call attention to some injuries which are important enough to be of more than passing interest. The average back case presented in this day of industrial court supervision encourages us to take sufficient time not only to study out the individual, but also, contributory factors which will in any way accelerate recovery. With the somewhat confusing array of symptoms presented to the doctor by the average claimant, and with the various reports of findings and re-examinations confronting him, the doctor has learned to keep his notes accurately and close at hand. The commonest injury presenting is probably that of a lumbosacral sprain. When this occurs the usual symptoms are pain at the lumbosacral joint and radiating probably to the crest of the ilium or up the spine laterally, and sometimes as high as the ribs. Other symptoms depending upon the extent of the sprain and attitude of the patient are likely included. X-ray examination is so frequently made light of because of what is commonly expressed as negative findings, it being the thought that if a patient has a real injury it can be clearly demonstrated by means of the X-ray, and should this be not done the fault lies with the exaggeration of symptoms by the patient or a mediocre ability of the X-ray man. As a matter of fact, referring to the lumbosacral anatomy, we observe that the spinal curve is fairly regular and the fifth lumbar is tilted within normal limits to an angle of between 40 to 45 degrees. Likewise, we notice the articular processes guarding against the slipping of the fifth lumbar forward on the sacrum. Now not all cases are normal. In fact, congenital abnormalities in the lumbar spine and pelvis are seen in about 35 percent of the cases examined, and only about half of

these abnormalities produce symptoms, but a developmental defect that does have a bearing in these back injuries is the one which permits deviation from the normal of these articular processes, which leaves the fifth lumbar with poorer bony support than normal. The most frequent type of back injury that we have coming up in the industrial examinations are among those patients who were injured while in a stooping position or while bending forward and were injured by a fall of rock upon the back, increasing the flexion far beyond what is considered a normal limit. In such a case, the fifth lumbar, which participates in over half of the motion by the trunk below the twelfth dorsal, is made to glide extremely high if indeed not slip beyond the articular processes of the sacrum. In any event, this allows a severe strain of the ligaments supporting the joint and of the muscles, and more especially of the ilio-lumbar ligament between the transverse processes and body of the fifth lumbar and the crest of the



PLATE A

ilium. In this type of case the X-ray is of especial help in determining the angle of the fifth lumbar and noting the character and position of the articular processes. Another type of case considerably disputed is the sacro-iliac sprain. While the pain in such cases is frequently not distinctive enough to separate it from the lumbosacral sprain just referred to, there is a marked tendency for the points of tenderness to be below the lumbosacral joint and over the synchondrosis, with pain radiating to the buttocks, hip and thigh. The majority of X-ray films may be negative, but not infrequently there are signs of new bone in the suspected area and occasionally slight deformity noticed in the pelvis. Plate A is an example. In this examination a slight lipping of the anterior margins of the third lumbar was noted. The sacro-iliac synchondrosis on the right side appears uneven, the iliac portion being slightly lower than the corresponding sacral portion. There is also slight bone production along the line of contact. A diagnosis of old sacro-iliac sprain seemed justifiable.

Statistics on fracture of the fifth indicate that this is an unusual injury. In fact, it is sufficiently rare that X-ray films clearly demonstrating the fracture are not without interest even in the largest laboratories. Plate B is a lateral in which the fifth lumbar shows the characteristic irregularity of outline of the body and uneven density. These signs are produced by crushing fracture, and with the usual appearance of light callous in this type of bone, anteroposterior views of this patient were comparatively negative, which manifests the fact that good laterals of the fifth should be procured wherever possible following an injury produced by acute flexion. I am pleased to record that the X-ray findings in the cases reported were wholly verified by the clinical report made by the attending surgeons.

Ainsworth Building.

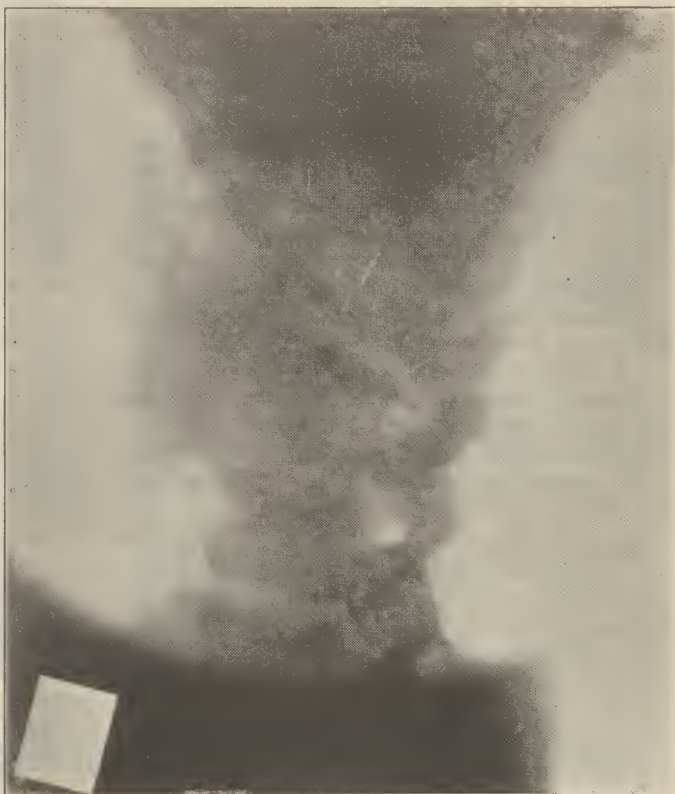


PLATE A



PLATE B

TULAREMIA

LEA A. RIELY, M.D., F.A.C.P.
OKLAHOMA CITY

Tularemia made its appearance on the public health and diagnostic horizon in 1911, when McCoy found some of the rodents of Tulare county, California were dying of a strange disease and later man was shown to be stricken with the same trouble by the intermediary of rabbit lice, bedbugs, etc. Until now there has been over 800 cases reported in the United States. It has been definitely proved that O'Hara's disease of Japan is identical with this plague. The past year has added about 1100 cases in some of the provinces of Russia, contracted from the water rat.

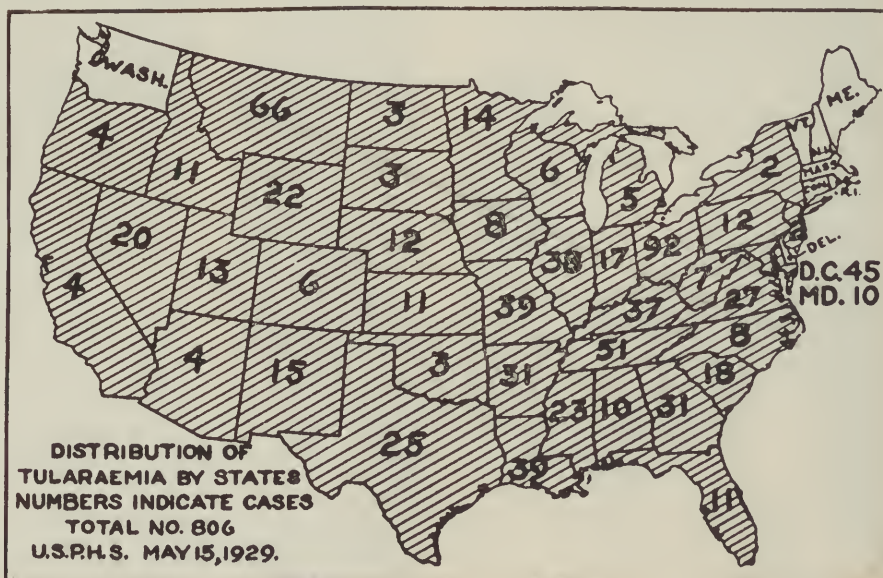
England has had a few cases among laboratory workers but there seems to be no cases reported to the north in Canada or the southwest in Mexico. Reports of 24 laboratory workers who have contracted the disease. Cases have been reported in every state in the Union except the New England States, Delaware, and Washington. Simpson of Dayton, has so enlightened the profession of Ohio, that they have diagnosed 92 cases, the greatest number of any state. Francis's missionary work in Washington, D. C., has resulted in tallying up 45 cases there. He examined 1000 rabbits shipped into the markets there and found positive evidence of Francis's disease, Rabbit disease, or tularemia in 9 per cent of the carcasses. Hence you see it has become a matter of considerable

significance as a public health problem. It has a vast economic problem because of the great number of cases and the fact that the convalescence as a rule is slow. It is rare for a patient to be at work again at the end of a month, usually the second month is spent lying about the house owing to weakness on exertion, and during the third month only half time work is performed. Some have not entirely returned to normal for six months or even a year. The case I am about to report is unusual in the fact that the patient was ill with fever only five whole days and only evening fever thereafter for four days. That his loss from work was only five days and he was on full duty in seven days is rather remarkable because of the usual slow convalescence as stated above.

CASE REPORT

C. W., age 29, 1804 West Thirteenth Street, February 1, 1930. Vocation: Bell Telephone Company. Avocation: hunting with his dog after business hours and holidays, frequently shooting and skinning a rabbit for his dog. About November 20, he shot and skinned a quail and pricked the distal phalanx of his right thumb with a broken bone of the bird. This healed over nicely at first but always tender when he opened up a painful inflamed papule and let out a drop of "pus" leaving a punched out appearance of the lesion, with raised edges, the size of a match head, which in healing has left a small scar at this time. "Leaders" running up his arm became sore but never saw

This map taken from Simpson's article *Journal of Laboratory and Clinical Medicine*, January, 1930, shows only three cases reported in Oklahoma, and those are reported by Dr. Lee Wilhite of Perkins, Okla. We have not recognized this disease or we should have reported more from this State where we have such abundance of game and so many hunters.



any red streaks but could never raise his arm to a right angle to the body because of a pulling sensation, and a tenseness of certain stringlike cords which felt like piano wire stretched subcutaneously to the inner edge of the biceps. Sick Thanksgiving day with "flu", so diagnosed by an M.D. Felt bad on arising but went hunting anyway, came home at noon with raging fever, myalgic pains, profuse sweating, headache, vomiting and chilliness. Fever lasted four days, rather high. Friday p. m., temperature of 105 but says was much sicker on Thursday night and Friday morning. Was at home until Monday afternoon when he went down town. Still had fever but not so much. Felt that he had evening fever, with morning remission, which lasted all that week. Was at home on Tuesday morning until noon but lost no further time from business. Motion of the arm has never hurt him, but has a pulling sensation as though held back by some shortening, when arm is raised at right angles from his body.

No epitrochlear glands palpable. No general adenopathy. No palpable spleen. Liver not palpable or tender. BP 120/80. Pulse 60, temperature 98.6 at 5:30 p. m. Hemaglobin 80, RBC 4,600,000, WBC 7,200, neutrophils 77, S. L. 19, LL 4, knee jerks and general neurological examination negative. Physical strength and energy not impaired. Urine negative. Fluctuating mass in right axilla opened under local anesthesia and mucopurulent material drained, leaving a smooth cavity much like the inside of a large egg shell. No peri-adenitis or inflammation of the skin. Culture from abscess was staphylococcus aureus in pure culture. State laboratory reported blood titration 1-640 for tularemia. Francis Hygienic Laboratory, Washington, D. C., reported 1-640 titration for tularemia.

No skin eruption noted during the course of the disease. (A very definite skin eruption usually bilateral was noted in thirty-two cases. It was macular, papular, pustular, maculopapular, papulopustular, blotchy, or a rash. In some cases it was painful and inflammatory, but was usually painless and did not itch. Desquamation and pigmented remains have been noted. Many acne lesions developed on the back of thorax during the illness in two cases. Extreme herpes was noted in one case. Jaundice was observed in one case.)

DISCUSSION

Pricked end of thumb with quail bone. (1) Pricked skin healed over and became sore and had to be opened with a pin. The primary lesion is a granuloma, not a purulent lesion and nothing is gained by incision. Systemic condition generally made worse by surgery thereby opening up a new area for absorption. Kernel occurred in axilla on day after Thanksgiving (24 hours after initial symptom), got sore but never inflamed. Began to increase in size Christmas, after hunting that day. Saw no inflammation or tenderness or redness about the soft fluctuating globular mass. Enlarged non-inflammatory axilla glands, right, and hard string like fibers, like piano wire running into these glands along inner border of biceps. Suppuration of lymph glands has been noted four, five, six, eight, nine, ten, fifteen, and even twenty-two and twenty-four months after the onset of the disease. Recovery usually occurs without evident sequelae.

DIAGNOSIS

History of having dressed or dissected a wild rabbit, or of being tick bitten or fly bitten; (2) a primary lesion of the skin in the form of a papule, followed by persistent ulcer or a primary conjunctivitis, followed often by ulcers of the conjunctiva; (3) Persistent glandular enlargement in the region draining the primary lesions; and (4) fever of from two to three weeks duration. Microscopic examination of cover glass preparations are useless for diagnosis. The final diagnosis of tularemia rests on the isolation of *B. Tularensis*, a gram negative coccobacillus which was grown first on systine glucose agar, from guinea pigs inoculated with material from the lesion, glands or blood of the patient or the agglutination of a stock culture of *B. Tularensis* with the patient's blood serum.

Diagnosis of these cases depended upon the following tetrad: (1) Having dressed or dissected a rabbit, water vole, sheep, muskrat, wild game as quail, grouse and increasing numbers of harbingers of rabbit, ticks, bedbugs or being fly bitten by flies that have previously bitten an infected object. Incubation period from 2 to 9 days. The shorter the incubation the more virulent the course. One reason why the case I am reporting was so mild was that the incubation period of as long as seven days. (2) A primary lesion of the skin in the form of a papule followed by a persistent

ulcer, which leaves a scar on healing, or a primary conjunctivitis followed by an ulcer of the conjunctiva. In laboratory workers, several have become ill without any primary lesion, guinea pigs have died with the disease after rubbing a piece of spleen or some other lesion on the unshaven skin, rats will become infected after eating contaminated bedbugs. (3) Persistent glandular enlargement in regions draining the primary lesion either in epitrochlear or in arm or axilla. The glandular enlargements usually are found simultaneously with the abrupt onset of the fever. They may subside gradually and subsequently enlarge with about one-half of them going on to suppuration. By way of parenthesis, would say that no surgeon operating on these glands, no nurse or attendant has ever contracted the disease from their patient, *i.e.*, no instance has been reported of the spread of the infection from man to man by mere contact. Microscopic or cover glass examination from these supporting glands have been useless until Simpson, Journal Lab. and Clinical Medicine, Vol. XV, January, 1930, claims to have grown *Bacterium Tularensis* on artificial culture medium a human serum modification of Francis cystine, glucose, meat, infusion peptone agar for the first time. The final diagnosis of Tularemia rests on the isolation of *Bacterium Tularensis* from guinea pigs inoculated with material from the lesion, glands or blood of the patient. (4) Agglutination first appears in the second week and increases in strength until after the sixth week when it gradually lessens the strength of the titer, remaining a known positive for as long as twenty years.

Francis found in about 37 percent of the cases, it cross-agglutinates when titered with undulant fever of low titer. One attack confers permanent immunity hence laboratories where the research of this disease is being carried on are glad to get one who had previously contracted and hence not subject to recurrence.

Francis describes four clinical types after a study of 679 cases:

1. *Ulceroglandular Type*—The primary lesion is a papule of the skin, later an ulcer and is accompanied by enlargement of the regional lymph glands.

2. *Oculo-glandular*—The primary lesion is conjunctivitis and is accompanied by enlargement of the regional lymph glands.

3. *Glandular Type*—There is no primary lesion at the site of infection but there is enlargement of the regional lymph glands.

4. *The Typhoid Type*—There is no primary lesion nor is there glandular enlargement. The word "typhoid" is used here in the sense of an absence of manifest external lesions and not signifying the so-called typhoid state of the mind.

SOME OBSERVATIONS OF POST VOLSTEAD ALCOHOLIC PSYCHOSIS

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The purpose of this paper is to bring to your notice some observations, made during the past five years on one hundred and five cases of alcoholism. A few of these points I do not find mentioned in the recent literature.

In the first place, there has been a decrease in the number of cases admitted to hospitals. Dieffendorf, 1914, states that 25 percent of all cases admitted to hospitals, were sent there because of alcohol. A 1920 edition by the same author gives only 15 percent; William A. White in his *Manual of Psychiatry* again reduces this figure to 12 percent. Stephen Perham Jewett states that in his experience not more than 4 1-2 percent of the ascendants of the insane and mental defectives are alcoholic. Now, in spite of all we hear these days concerning drinking, by the young and old, you can clearly see that there has been a very decided reduction in the number of cases reaching the hospitals. While there may be more drinking I doubt it; if so, why should the number of cases sent to the hospitals show such a marked decrease. The part that alcohol plays in producing psychoses, while very important, is not fully understood. Of all the pharmacotoxins with which pathology, and particularly neuro-pathology are concerned, none is so important as alcohol. In this country it is chiefly whiskey drinking which is responsible for the greater portion of chronic alcoholism. When one considers the numerous ways in which alcohol may enter as a factor in producing mental disorder, and its far reaching effects, it is readily seen that

statistical study cannot begin to fathom the problem.

In attacks of psychoses brought about by alcoholic indulgence, it is probable that they are considerably modified, and present a somewhat atypical picture. We must not forget that psychoses produced as the result of the abuse of alcohol, are dependent in the final analysis upon something besides the alcohol; namely, upon some peculiarity in the make-up of the individual. Just here I think a little discussion of the effect of alcohol will prove beneficial. Why is it that one man who has been a daily consumer of alcohol for many years, reaches a ripe old age and dies with mentality unimpaired, and with no inflammatory changes due to the use of alcohol, while another, after a comparatively short life, suffers in one organ or another after a relatively short use of the same intoxicant. The answer lies in the original inferiority of some specific organ, which may be the central nervous system.

What is the action of alcohol, is it stimulant or depressant? For many years it has been considered as a stimulant. Such supposition, however, has been based largely upon false interpretation of subjective experiences. As an example, one feels rested by a small dose of alcohol. The rested feeling was supposed to be due to stimulation, while on the contrary it is due to inhibition of the sensory channels, conveying the sense impressions that make up the feeling of fatigue. Alcohol always acts as a depressant and never as a stimulant.

The types of persons who drink and the reasons for drinking are many and varied. While there are certain social factors involved, the more important lie in the make-up of the individual. First, we find the person for whom drinking is the expression of a psychosis, and not the main cause; as an example, the early paretic and mild cases of manic depressive. The alcoholic symptoms may so cloud the picture for some time that the real underlying trouble is not discovered. Secondly, there is a large group to which belong those who drink to drown their troubles, and to escape from reality by introducing a veil between it and themselves, making themselves less accessible to the world of reality, by dulling their sensorium. In this group, we find the hysterics and the psychoneurotics. Also here I

would like to add another type, the young business executive who has been rapidly promoted, and who, because of the tremendous amount of energy required to fill his position, feels the need of some so-called stimulant. Naturally he turns to alcohol and soon finds himself hopelessly in its power. Third, there is a large group who are especially susceptible to alcohol and although not consuming large quantities, manifest an exaggeration of symptoms. Here we find the post-traumatic; head injuries, and sunstroke. Also the unresistive types where alcohol like fever, serves as a measure of their resistance and stability. Fourth, alcohol enters into, complicates and modifies the picture of other psychoses, especially dementia praecox. These cases, many times realize their inadequacy, and drink to buoy themselves up in order to face the world on an equal footing, with others more fortunate. Finally, a certain number of purely alcoholic psychoses, that is, those that are apparently dependent upon alcohol *per se*.

Of the psychoses due directly to alcohol, we found the following types: pathological intoxication, delirium tremens, acute and chronic hallucinoses, acute and chronic paranoid types with an occasional Korsakows and chronic alcoholic deterioration. The hallucinoses have been the more prominent with the paranoid types running them a close second. We have not received as many cases of delirium tremens; either they have been treated before reaching us or they have merged into either the acute or chronic state of hallucinosis. The border line is so small and overlapping so great that an absolutely clear cut diagnosis is impossible. This holds true of all the types.

It might be well to consider at this time some of the pathology. Every organ and tissue in the body is affected by alcohol, and I am sure that you are all familiar with the various changes. However, it seems that alcohol has a special affinity for nervous tissue, as we find the most pronounced changes taking place in the central nervous system and its branches. There is actual destruction of ganglion cells, neurotic processes in the peripheral and optic nerves, as well as degenerative changes in the fibers, and an increase in the supporting tissues due to changes in the blood vessels. Pachymeningitis, edema, congestion, thickening, opacity of the arachnoid or sometimes punctate hem-

orrhages into the brain are found. The changes vary in degree and kind with the individual susceptibility of the tissues and organs, to the intoxicant. Many of these changes are brought about no doubt indirectly, through metabolic changes rather than by direct action of alcohol itself.

As above stated, symptomatology is somewhat mixed, however, there are a few cardinal points I wish to emphasize. One of the outstanding symptoms is clouding of the consciousness. It seems to me that this is deeper and more noticeable in the post Volstead types than formerly. Mental confusion with flight of ideas is quite prominent in all cases, but much more so in the hallucinoses and tremens. Hallucinations of a very disagreeable and bitter nature are coupled with delusions of persecution.

Owing to the type of alcoholic beverage obtainable now, there are a few points that seem to be worthy of special attention. Before passage of the Volstead act all whiskey was properly aged in wood. Now days this process is hastened, this being done in several ways. The barrel is washed with either a strong solution of lye or sulphuric acid, leaving the wood in such condition that a good color is imparted in a very short time. Also it is a common practice to use a little lysol as a coloring agent and impart an added "kick". One can readily see what the addition of such chemicals will do. Alcohol at the best is a powerful irritant to mucous membrane; just think how much more so it is with the addition of lye, lysol or sulphuric acid.

When these agents are not used, the raw distilled corn proves almost as efficient as an irritant. If you will pardon the expression, the "kick" and after effects are like the kick of a full grown Missouri mule. This leads to several things. Because of the strong irritant action, we are finding a large number, about 40 percent of our cases developing a rather severe trophic neuritis, this is accompanied by a dermatitis which closely resembles that of pellagra, both as to appearance and distribution. Even the tongue often takes on the red slick appearance of pellagra. I do not find this to be so common in the literature of the pre-volstead days but it seems that it is more commonly found in the cases we are receiving today.

Another point I have noted and fail to find mention of in the literature is in the blood picture. There is very little variation from the normal, with the exception of an increased eosinophile count. I have found this to be increased in about 80 percent of cases. The count varies from 2 to 6 percent and in one or two cases running as high as 8 percent. This increase was always present in those cases with dermatitis but also in many of the others. I will not attempt to explain this further than to say that eosinophilia is known to be present in skin eruptions and also in certain types of gastro-intestinal irritation.

There is one other point upon which I wish to place special emphasis. This is that the alcoholic psychoses we have now are not purely alcoholic, at least in the majority of cases. There are several reasons for this, at times there is at least a relative scarcity of whiskey, again the price at times becomes almost prohibitive. Another reason because of the adulteration as I have mentioned above, the after effects are in most cases severe, leaving a "hang-over" that requires some relief. This is found by taking any one of several drugs, namely: bromidia, aspirin, luminal, barbitol, bromides, or bromo-chloral compound. No doubt you have all had some patient come to you for relief following a debauch, and, in most instances, prescribed some of the above drugs. Now here is the danger line. At first, the alcoholic takes these drugs for insomnia, or relief from headache, later he begins to take them along with the whiskey to prevent or alleviate the symptoms. Soon however, these drugs have entirely replaced the whiskey and we have a drug addict superimposed upon an alcoholic. This leads to confusion of diagnosis and prolongs the recovery. An alcoholic *per se* is always a sufficient problem to handle, but much more so is the mixed type we are now getting. Bromidia, an excellent combination of drugs if properly handled, becomes one of the most dangerous when it falls into the hands of the alcoholic. The craving for bromidia soon replaces entirely the whisky and when such a state is reached we find indeed a pitiful picture. These cases present marked clouding, confusion and disorientation; they become forgetful, care-

less of their appearance and morals, their business suffers and in most instances is wrecked. Nor do they clear up as rapidly as straight alcoholics. Further, I believe the tendency to recurrence is greater. I have taken bromidia as an example, but the same is true of the other drugs.

Now as to treatment, it is almost essential that these cases be hospitalized, as in no other way can you be sure of keeping the drugs and alcohol out of their reach. Abrupt withdrawal of the alcohol and drugs has been our practice although in one or two cases we have found it necessary to resume the use of alcohol in smaller doses and gradually decrease it. This was necessary to prevent collapse. Free elimination by both bowel and kidney by forcing the fluid intake and the use of saline cathartics. Rest in bed is essential the first few days to assist in the relaxation of the nervous system. Hydro-therapy is at times very useful both to promote elimination by the skin and for its sedative effect to the nervous system. For this purpose we have found the neutral continuous bath of two to three hours most useful. Hyoscine hydrobromide is a very useful drug during the first few days, but must be used in small doses and with caution. During the period of convalescence, the writer knows of no better drug than elixir of iron, quinin and strychnin.

In conclusion, I would suggest that we as physicians be extremely cautious in prescribing any of these preparations to an alcoholic. While we must give them relief, we can at least exercise caution.

1. That the patient does not find out what he is taking.

2. See that our prescriptions are not refilled without a written order.

3. Do not prescribe more than enough of the drug to carry the patient over one attack.

4. To endeavor in some manner to place a restriction upon the sale of these drugs so that they cannot be bought so easily. In our experience we have found these drugs to be as dangerous in the hands of the alcoholic as opium and its derivatives.

PRODUCED ACETONURIA—ITS VALUE AS A DIAGNOSTIC TEST FOR PREGNANCY — A STUDY OF THREE HUNDRED CASES*

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ARDMORE

In 1923, Pritzky and Lichtman¹ reviewed their work on the tests for pregnancy and described in detail the method of Novak and Porges, which they had subjected to study and test. No other method, including the Abderhalden, has stood the test of practice. Novak and Porges's work rests upon the ease with which an artificial acetonuria may be produced in the pregnant woman, and much earlier than in the non-pregnant state. During the pregnant condition fat oxidation requires larger quantities of carbohydrates for complete combustion. Our tests show that the non-pregnant individual requires at least forty-eight hours to produce acetone, after being deprived of carbohydrates, and the pregnant woman requires much less time. This fact is the basis of our modification of Novak's and Porges's work.

With the cooperation of the local physician, three hundred cases have been studied in our laboratory, and results seem to show that this test, carefully carried out, is a valuable diagnostic test. These cases appeared at the offices of the various physicians shortly after the cessation of normal menstrual function, and were given the following instructions for their test diet. Upon arising the following morning, urine was to be voided and saved. A breakfast consisting of cereal with cream and sugar, buttered toast and coffee with cream and sugar, or a glass of milk, at 8:00 a. m. After this breakfast, no further intake of food until 5:00 p. m. At that time, another urine specimen is voided, and the first (before breakfast) specimen, and the last (5:00 p. m.) specimen are sent to the laboratory. It is important to impress upon the patient that "no food" means absolutely nothing but water. No chewing gum or "picking" is allowed, from breakfast until the 5:00 p. m. specimen is passed. The specimens are tested for acetone by a modification of the Rothera test, which is accurate and easy of manipulation. The technique is as

*Read before the Carter County Medical Society, December 9, 1929.

follows. One gram of sodium nitroprussid is weighed out and placed in a mortar. Five hundred grams of C.P. ammonium sulphate is weighed out, and a little of the latter is placed in the mortar with the sodium nitroprussid. The two are finely ground and intimately mixed. A little more of the ammonium sulphate is added and mixed. This is repeated, adding about a teaspoonful at a time, until about 100 grams of the ammonium sulphate is thoroughly impregnated with the sodium nitroprussid. The mixture is poured out upon a large sheet of paper, the rest of the ammonium sulphate is added and the whole intimately mixed. This mixture is kept tightly corked in a wide mouthed bottle. The test proper is as follows:

About 1 inch of the mixed nitroprussid and ammonium sulphate is poured into a clean, dry test tube. About three inches of the urine to be tested is added, the whole inverted several times to mix and dissolve. Two cc. of full strength ammonia water is floated upon the surface of the mixture and allowed to stand for a few minutes. Acetone is demonstrated by a violet to purple color developing at the junction of the two fluids. The deeper the color, the stronger the acetone present.

A positive test for pregnancy is shown when the first tube is negative for acetone and the second tube is positive. (The first tube, being negative, shows that there was no acetone normally in the urine). A negative test for pregnancy is shown when both tubes show no acetone. When both tubes show the presence of acetone, there is an acidosis that must be eliminated before the test can be applied. Several of these have been met with in our work, but they are not included in this series. After the acidosis has been cleared up, repeated tests proved positive.

Of the 300 hundred cases studied, 257 were positive, and 43 negative. Of the 43 negative, 40 were negative clinically, and upon examination 6 months after test. Two were extopic pregnancies, which ruptured and were operated upon. One was examined three months after test, and was clinically negative, another was lost sight of. Of the 257 positives, 7 premature deliveries, all living; 21 induced abortions, afterward hospitalized; 16 definite history of miscarriage, doctors being in attendance; 1 uterus full of clotted

blood, careful examination showing no evidence of foetus; 212 normal deliveries.

The positive test which was afterward curetted, and showed no trace of a foetus, was the only apparent fallacy in the series, excepting the two ectopics, which gave negative tests.

CONCLUSION

This test, based on the work of Novak and Porges, and Pritzky and Lichtman, can be applied successfully for the diagnosis of pregnancy. At the time the test was made, the date of the last menstrual time was taken and the earliest time in which the test was positive was 27 days from the last period. A positive test proves pregnancy with certainty; a negative test does not exclude pregnancy, but renders it highly improbable.

THE IMPORTANCE OF LONG EXPERIENCE

"There is one thing about Mead Johnson & Company I like," said the physician who had visited the Research Laboratory at Evansville. "They don't go off half-cocked. You never hear of any severe nutritional disturbances resulting from their infant diet materials. Before they put a product on the market, they study and test it with infinite patience, and very quietly."

"For example, they have been working with vitamin B for eight years and only now in the Journal of the A. M. A. for March 22 are they publishing the fact that they evolved a vitamin B concentrate eight years ago."

"They have been working on a new form of Dextri-Maltose (with vitamin B) which they are about to market. I'll wager there won't be any diarrheas or other untoward results with this preparation. Mead Johnson's research before marketing is too thorough."

INFANTILE KIDNEY

Abraham G. Fleischman and Boyd Anderson, Des Moines, Iowa (Journal A. M. A., July 6, 1929), report one case. The following are the important and salient facts that should be remembered with reference in infantile kidney: (1) The function of an infantile kidney shows marked impairment as determined by the calorimetric dyes but still is able to excrete normal urine and concentrate urea in normal quantities. (2) The function of a kidney in which disease is present is always greater than that of the supposedly normal infantile kidney. (3) Pyelography is often of assistance in the diagnosis of this rare condition but cannot always be relied on. (4) The decision before advising surgery in a diseased kidney when the other is infantile must be made cautiously because of the inability of the infantile kidney to undergo compensatory hypertrophy an essential factor if a successful outcome is to be attained.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

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EDITORIAL

McALESTER HOSPITALS

This issue is largely devoted to productions of the staff of the Albert Pike Hospital, McAlester. It is not generally known but the first hospital, worthy of the name, was established in McAlester, which for many years, since the discovery of its enormous coal fields, has been one of the greatest producing centers of the State, many thousands of men being employed in it and its immediately surrounding towns, which owe their origin and existence largely to rich coal deposits.

One of the most terrible accidents in

mining history in the United States occurred at Krebs mine near McAlester, in 1892. This disaster, which cost the lives of more than a hundred men, brought forcibly to the fore the need of hospital facilities and from that was organized All Saints Hospital.

This and other hospitals has served McAlester well and efficiently since that time. It has been thirty-five years since All Saints was organized. This hospital was taken over finally, the Masonic fraternity assuming its management and obligations in June, 1925; so the original All Saints is now owned and operated by the Albert Pike Lodge of Perfection, No. 2. The hospital is standardized according to the requirements of the American College of Surgeons, is of fire proof construction, has 55 beds, X-ray physiotherapy and clinical laboratories. The hospital maintains a training school for nurses in charge of a full time directress, accepting ladies of the ages of 18 to 35 years; graduates of accredited high schools, and otherwise fit for training. The nurses' course requires three years, which is devoted to class room and practical work. Instruction is given by the graduate nursing staff and physicians and surgeons of the hospital staff.

The superintendent is Miss Mary A. Smith; superintendent of nurses, Mrs. Margaret Hoffman; night supervisor, Miss Mattie Lyne; surgical supervisor, Miss Margaret Girard; dietitian, Miss Grace Headrick; historian, Miss Ethel Kempe; cashier, Mrs. Mattie Farmer.

The writer has more than once visited Albert Pike Hospital and can testify to the high type of all its work and activities. McAlester may be well proud of this accomplishment, which has been brought about by the energy and ability of the hospital staff.

SOME ATTRACTIONS OF THE SHAWNEE MEETING

The Shawnee meeting will offer to the medical visitor many unusual features. Among these are: Two days of clinics, with demonstrations of the proper treatment of the various commoner fractures, the type that often get the physician and surgeon into trouble.

At intervals there will be moving pictures of various medical and surgical sub-



ALBERT PIKE HOSPITAL, McALESTER



ENTRANCE AND LOBBY—HERE IS WHERE BUSINESS
DETAILS OF THE HOSPITAL ARE HANDLED.



GRADUATE AND STUDENT NURSES WHO MINISTER TO THE
SICK AND SUFFERING AT ALBERT PIKE HOSPITAL

jects; these have not yet been selected, but will be chosen with a view as to the most fitting to the occasion.

Among the notables present will be: Dr. Fred H. Albee, New York, one of the country's outstanding orthopedic surgeons; Dr. Jabez N. Jackson, Kansas City, ex-president of the American Medical Association, on some physiological processes of the abdomen; Dr. Frank R. Teachenor, Kansas City, on Tumors of the Spinal Cord. Dr. C. M. Rosser, Dallas, will be a guest of honor and deliver an address to the General Session. Dr. C. M. Sistrunk, Dallas, formerly of The Mayo Clinic, will probably be present.

EXTENSION SERVICE OF THE STATE UNIVERSITY

Notwithstanding that on more than one occasion heretofore, we have called attention to the splendid work of the Extension Department rendered available by the University Medical School and authorized by the State of Oklahoma, to be administered by the State University, one of our correspondents thinks once more attention should be called to it.

Very few people realize the tremendous importance of the University of Oklahoma. Extension work is available not only for physicians and the medical profession, but for practically every type of citizen. Under the urge of ethics and the demands of the cause of right and justice, the legal profession has recently been and is now undergoing a very close scrutiny, especially as to irregularities and types of misconduct formerly ignored.

The medical department of the university has already presented many unusual and more worthwhile courses to physicians in various parts of the State. These have been held principally in Oklahoma City as it is the most logical point by reason of being the headquarters of the medical school. But courses have also been held in Tulsa and Muskogee. A few months ago an editorial in this Journal strongly urged physicians of the State to consider, wherever a sufficient number could be gotten together, such courses as might be desired.

Speaking from the personal standpoint, the writer received a great deal of help at a minimum cost from a course in anatomy and cadaveric surgery, held in Mus-

kogee, the course covering a term of nine weeks, the cost to each of the fourteen participants, \$60. Certainly no one can acquire this service by going away for many times the amount involved. Instructors for this work are rather limited so physicians should begin a long time in advance to lay their plans in order to accomplish their desires.

Those taking the course in Tulsa were: Drs. Whittle, Holdenville; Ogden, Electra, Texas; Gastineau, Vinita; Miller Guthrie; Kuyrkendall, McAlester; Ruby Daniels, and Viola P. Scanland, Dallas, Texas; Rust, Pawhuska; Lipscomb, Ponca City; Haas, Sapulpa; Fullenwider, Muskogee; From Tulsa were Haralson, Gorrell, Perry, Huber, Childs, Dunlap, Roth, Beyer; Brown of Ponca City. Drs. D. D. McHenry, Oklahoma City and Barker, Guthrie, had taken the course the previous week, came to Tulsa and repeated for 4 days.

ANNUAL SESSION—SHAWNEE MAY 26-28TH

COMMITTEES

POTTAWATOMIE COUNTY MEDICAL SOCIETY

Dr. R. M. Anderson, *General Chairman*

PROGRAM:

Drs. J. M. Byrum, F. L. Carson, A. C. McFarling, and T. C. Sanders.

FINANCE:

Drs. G. S. Baxter, W. M. Gallaher and Francis P. Newlin.

BADGES:

Drs. W. M. Gallaher, C. F. Parramore and G. H. Applewhite.

ENTERTAINMENT:

Drs. T. C. Sanders, Clinton Gallaher and J. M. Stooksbury.

GOLF:

Drs. Eugene Rice and T. C. Sanders.

RESERVE OFFICERS:

Drs. T. D. Rowland, J. A. Walker and H. A. Wagner.

INDIAN SERVICE AND PUBLIC HEALTH:

Drs. Walter S. Stevens, David Gillick and J. E. Walker.

FRATERNAL DINNERS:

Drs. Clinton Gallaher, Eugene Rice and John I. Gaston.

WOMAN PHYSICIANS:

Drs. Frances P. Newlin and McAdams Williams.

WOMEN'S ENTERTAINMENT:

Mrs. J. E. Hughes, Mrs. G. S. Baxter, Mrs. Eugene Rice, Mrs. T. C. Sanders, Mrs. T. D. Rowland and Mrs. John I. Gaston.

HOTELS:

Drs. J. H. Scott, John I. Gaston, M. A. Baker and H. G. Campbell.

BANQUET:

Drs. J. E. Hughes, W. C. Bradford, T. C. Sanders and Walter Stevens.

NATIONAL HOSPITAL DAY

Hospitals throughout the United States and Canada are beginning plans for the tenth observance of National Hospital Day, May 12, according to information reaching Dr. J. R. Morrow, superintendent, Bergen Pines, Oradell, N. J., chairman of the National Hospital Day Committee of the American Hospital Association.

While some institutions which have observed the day since its start are seeking new ideas, the majority of the hospitals will have "open house", reunion of babies, inspection of departments and other features which met with such success in previous years. Some of them undoubtedly have had the same experience as a hospital that decided to omit its "baby show" one year and found that the mothers, who had gathered in larger numbers than on the previous occasion, were greatly disappointed.

That more small hospitals will observe May 12th this year than in the past is the belief of some of the members of the national committee, owing to the tribute paid to small hospitals in rural sections by President Hoover in his endorsement of National Hospital Day.

Hospital councils in some cities focus all their attention at March and April meetings on plans for a joint observance of National Hospital Day. The Chicago Hospital Association is among those doing this at this time. This association, incidentally, already has been tendered time on two radio stations.

The national committee is in touch with large manufacturers and others using na-

tion-wide radio hookups and hopes to extend the radio publicity given National Hospital Day last year. Many hospitals also are making arrangements for individual radio programs, as in the past.

Most of the hospitals conducting schools of nursing which will have a National Hospital Day program will give considerable attention to a presentation of facts about nursing education and nursing service, keeping in mind that May 12 is the anniversary of the birth of Florence Nightingale.

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Editorial Notes—Personal and General

DR. DEWITT STONE, Sayre, is reported very ill at his home.

DR. J. W. BAKER, Enid, who has been ill is reported recovering.

DR. G. P. CHERRY, formerly of Granite, announces his removal to Mangum.

DR. A. J. L. MOYSE, formerly of Castle, announces his removal to Okemah, Okla.

DRS. T. J. LYNCH and J. O. LOWE, formerly of Okmulgee, announce their removal to Tulsa.

DR. C. N. TALLEY, Marlow, is spending about four weeks in Rochester, Minn., taking post-graduate work.

DR. G. Y. McKINNEY, Henryetta, and Miss Cecil Buckler, Dustin, were married at Jasper, Ark., June 15, 1929.

CHEROKEE COUNTY MEDICAL SOCIETY met January 8th, and elected the following officers: Drs. P. H. Medearis, Tahlequah, president; Swartz Baines, Tahlequah, secretary-treasurer.

ADAIR COUNTY MEDICAL SOCIETY have elected the following officers for 1930: President, Dr. E. P. Greene, Westville; vice-president, Dr. E. E. Poyner, Stilwell; secretary-treasurer, Dr. Jos. A. Patton, Stilwell.

GARVIN COUNTY MEDICAL SOCIETY met March 19th, Pauls Valley, in the office of Dr. W. P. Greening. Dr. M. S. Gregory, Oklahoma City, talked on "What is a Neurosis?" and Dr. Carl Puckett, Oklahoma City, talked on "Tuberculosis."

MUSKOGEE COUNTY MEDICAL SOCIETY met March 27th, for their regular meeting, with Dr. R. M. Shapard, Tulsa, as the speaker of the evening. His subject was "Lung Abscesses." Drs. E. Levey, F. J. Wilkiemyer and Pat Fite discussed the paper.

SEMINOLE COUNTY MEDICAL SOCIETY met March 20th, at the Chamber of Commerce, Seminole. Dr. J. M. Byrum, Shawnee, gave a lecture on "Progressive Medicine." Dr. Claude S. Chambers, Seminole, read a paper along the lines upon which Dr. Byrum spoke. About twenty physicians were present.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETY met March 17th, at the First Presbyterian church, Okmulgee, for its regular meeting. Doctor Basil A. Hayes, Oklahoma City, spoke on "Common Rectal Diseases," and Doctor Henry H. Turner, Oklahoma City, on "Endocrinology in General Practice." Both papers were illustrated by lantern slides.

TULSA COUNTY MEDICAL SOCIETY met February 24th, in the assembly room, Medical Arts Building, Tulsa, for their regular meeting. Dr. Fred M. Drennan, professor of gastro-enterology at Loyola University, Chicago, Ill., presented a paper on "The Medical Management of Duodenal Ulcer, with Special References to Factors That Hinder Its Success." Drs. Peter Cope and Daniel W. White gave a dinner before the meeting at the Tulsa Club, in honor of Dr. Drennan.

DR. E. GOLDFAIN, Dr. Carroll M. Pounders and Dr. E. Margo, all of Oklahoma City, attended the meeting of the Stephens County Medical Society of Duncan, Okla., on March, 25, 1930. Doctor Goldfain read a paper upon the subject of "Neurological Aspects of Industrial Back Cases", and showed some moving pictures demonstrating various gaits and symptoms. Dr. C. W. Tedrowe of Enid, read a paper on the subject of "Gall Bladder Disturbances". Dr. V. C. Tisdal of Elk City, and Dr. Earl D. McBride of Oklahoma City, were visitors.

DR. L. H. STUART and DR. I. A. NELSON, radiologist and pathologist, respectively at St. John's Hospital, Tulsa, Okla., announce the opening of their downtown laboratories at 316 Robert's Bldg., Sixth and Main Streets. Until last November, Dr. Stuart was radiologist at Springer Clinic and has been in charge of the department of radiology at the hospital for nearly two years. Dr. Nelson, in charge of the department of pathology, will be remembered by his friends in Enid and vicinity, whence he came to assume his present duties about three years ago.

SOUTHERN OKLAHOMA MEDICAL ASSOCIATION held their regular meeting in Waurika, the following appearing on the program: Address of Welcome, Senator C. E. Storms, Waurika; Response, Dr. D. Long, Duncan; "This Sinus Thing," Dr. A. M. McMahan, Duncan; "Diagnostic Clinic," Dr. T. M. Aderhold, El Reno; "Dermatology, Today," Dr. Curtis R. Day, Oklahoma City; "Endocrinology in General Practice," Dr.

Henry Turner, Oklahoma City; "Disorders of the Thymus Gland," Dr. Tom Lowrey and Dr. Hugh Jeter, of Oklahoma City; President's Address, Dr. F. A. Harrison, Ardmore.

MUSKOGEE COUNTY MEDICAL SOCIETY met February 24th, Dr. Ned Smith, neurologist and psychiatrist, of Tulsa, delivered an address on "Psycho-Neurosis: Patients or Pests." Dr. M. O. Nelson, dermatologist, of Tulsa, delivered one on "The Significance of Serological Tests in the Diagnosis and Treatment of Syphilis."

March 11th, the Muskogee County Society heard an interesting address on "Ununited Hip Fracture," by Dr. Wade Sisler, of Tulsa. This address was illustrated by lantern slides. Dr. J. E. McDonald, orthopedist, Tulsa, demonstrated a new bunion operation. About forty men were present at each of these meetings.

AMERICAN SOCIAL HYGIENE ASSOCIATION

Regional conference of the AMERICAN SOCIAL HYGIENE ASSOCIATION, under the auspices of the Louisiana State Board of Health and the New Orleans Council of Social Agencies, at the Hotel Roosevelt, New Orleans, May 26-27. Institutes will be held on Friday and Saturday, May 23-24. Public meeting Sunday. Speakers from most of the southern and southwestern states will take part in the program, as well several representatives from the national society. The meeting should prove of great interest to physicians, public health workers, social service workers and members of parent-teachers organizations.

PRIZE FOR GOITER PAPERS

Beginning this year the American Association for the Study of Goiter will award a cash prize of \$300.00 annually for the best original thesis dealing with some phase of the goiter problem. Theses should be submitted by June 1st, to Dr. Walter M. Simpson, chairman of the Essay Committee, Miami Valley Hospital, Dayton, Ohio. The award will be given immediately following the coming meeting of the Association which is to be held in Seattle, Wash., July 10-12, 1930.

DOCTOR JAMES ISSAC TAYLOR

Dr. J. I. Taylor, sixty years of age, died at his home at Ringling, March 2d, after a prolonged illness.

Dr. Taylor was born near Louisville, Ky., July 26, 1870. He attended the Fort Worth University where he received his M.D. degree, April 2, 1896. He came to Ringling in 1923, where he practiced medicine up until the time of his death.

He is survived by his wife, five children and five sisters.

Funeral services were under the auspices of the Masonic Order, with burial in the Cornish cemetery.

DOCTOR ROBERT A. LIVELY

Dr. R. A. Lively, pioneer physician of Durant, died February 20th, at his home, after a prolonged illness.

Dr. Lively was born December 25, 1848, at Holdenville, Ky, making him eighty-two years old at the time of his death. He was reared and educated in that community and was graduated with his medical degree from the College of Physicians and Surgeons at Keokuck, Iowa, in 1879. He began the practice of medicine at Campbells-ville, Ky., immediately after his graduation, but moved to Savoy, Texas, in 1885. He married Miss Tommie Squires in 1890, and she with their son, Robert A. Lively, Jr., and a sister, are his sole survivors.

Dr. Lively and his wife moved to Colbert, Indian Territory in 1893, and a year later moved to Durant, where they have since made their home, Dr. Lively retiring from practice in 1907.

Funeral services were held March 22d, at the First Presbyterian church, with Rev. Wm. N. Sholl, and Dr. Ebenezer Hotckin officiating. Burial was in Savoy, Texas.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Phrenicoexairesis in Progressive Pulmonary Tuberculosis. Erza Bridge and Perry A. Bly. American Review of Tuberculosis, November, 1929.

Simple section of the phrenic nerve was proposed in 1911 by Stuertz for basal tuberculosis. In 1913, Schepelmaun suggested section and avulsion of the phrenic nerve in early pulmonary tuberculosis. In the same year Sauerbruch, working independently, reported results in five cases treated by this method.

The phrenic arises chiefly from the fourth cervical nerve, partly from the third and sometimes a small root from the fifth, and rarely receives a filament from the sixth.

The diaphragm is derived from the fourth cervical myotome and belongs to the cervical muscles. In the embryo it lay in the cervical region and migrated to its final position between the thorax and abdomen. Hence it is that it is supplied by the phrenic nerve which elongates as the diaphragm descends to its final position.

The operation is done under local anesthesia; incision is made about one inch above the clavicle and parallel to it just posterior to the sternocleidomastoid muscle. The nerve is exposed as it lies on the scalenus anticus, anesthetized, dissected free and severed; the distal portion is wound around forceps and given slow and intermittent traction until it gives way. It is desirable to get at least 8 cm. so that any accessory nerves will be removed.

In certain cases the nerve is crushed or injected with alcohol in order to secure temporary paralysis of the diaphragm which may last from four to five months. Later, if the progress of the case is satisfactory, radical phrenicectomy may be done.

The accessory muscles of respiration still function but the operation brings about a very important decrease in pulmonary expansion, which makes it an ideal procedure in cases having a unilateral disease, yet it should not be entirely limited to this type of case.

The authors report sixty cases with gratifying results. They observed that after operation the patients raise more sputum for a time but with less effort. The pulse rate is temporarily increased and there is little or no discomfort except for slight and transient dyspnea.

The Indications for the Surgical Treatment of Pulmonary Tuberculosis. E. J. O'Brien. American Review of Tuberculosis, November, 1929.

The various surgical procedures are as follows:

1. Crushing of phrenic nerve.
2. Exaeresis of the nerve.
3. Artificial pneumothorax.
4. Artificial pneumothorax and phrenic exaeresis.
5. Extrapleural pneumolysis (open and closed methods).
6. Thoracoplasty (upper stage only) without phrenic operation.
7. Thoracoplasty (upper stage only) with preliminary phrenic crushing.
8. Thoracoplasty (upper stage only) with preliminary phrenic exaeresis.
9. Thoracoplasty (lower stage only).
10. Thoracoplasty (complete); upper stage first.
11. Thoracoplasty (complete); lower stage first.
12. Thoracoplasty; parasternal.
13. Extrapleural pneumolysis.
14. Thoracoplasty with traction wires.
15. Resection of intercostal nerves.

This is the sequence in which the author thinks these procedures should be placed. It is his opinion that practically every demonstrable unilateral tuberculous lesion should have some form of compression therapy and that almost none of them be left to bed-rest alone.

The age, patient's general condition and the presence of complications elsewhere in the body must be taken into consideration.

Phrenic nerve operations are done to cause paralysis of the diaphragm. He recommends simple crushing in exudative lesions with light infiltration and localized nodular forms of productive lesions without cavitation which are not active or progressive. If this same lesion be more extensive, though not more active, a phrenicectomy should be done.

In predominantly exudative lesions that are rapidly progressive and active, a greater amount of compression is needed and artificial pneumothorax should be given at once.

Tuberculous pneumonia, if seen early, should

be combatted at once with artificial pneumothorax.

When considering compression of a diseased lung and there are suspicious lesions in the contralateral lung which we wish to test out, artificial pneumothorax should always be tried first.

Patients with uncontrollable hemorrhage, even if the disease is markedly bilateral, should have compression by air, if possible, on the side from which the bleeding occurs, if this can be determined. If this cannot be done, crushing of the phrenic nerve is indicated.

If thin adhesions are present preventing sufficient collapse, frequent refills of small amounts of air often bring about the desired result, but if this fails, an attempt may be made to cut the adhesions, either by the closed method of Jacobaeus or by the open method.

Thoracoplasty is used when the more simple procedures fail. It is indicated in the process of repair after destruction has taken place and cavitation and fibrosis have resulted. The age of the patient, chronic nephritis and heart complications most frequently decide us against radical surgical procedures. Intestinal and laryngeal tuberculosis should not discourage compression as a rule, but rather encourage it, for they often clear up after compression of the diseased lung.

In those patients in whom thoracoplasty seems too severe because of age or other complications, phrenicectomy and resection of the intercostal nerves, will often be of value. Alexander has reported favorable results from this procedure.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

A Case of Achondroplasia of Hypoplastic Type. A. Loffredo. *Pediatrics*, XXXVI, 481, May, 1928.

The case is one of a new-born achondroplastic, dead on the twenty-second day from sepsis due to calcaneal ulcerations. The case appears interesting on account of the histological alterations found in the hypophysis, the thyroid, the parathyroid and pancreas, alteration of a sclerotic type which, combined with clinical data (enlarged liver), cause one to believe the patient a subject of hereditary syphilis.

For the etio-pathogenic interpretation of the achondroplasia, the author refers to Giume and Graziano, while he hesitates to accept the theory of Murk Jansen, holding that often during embryonal development, although there is an increase of amniotic fluid in the uterine cavity, nevertheless achondroplasia and other malformations are not produced and besides, such an increased volume of amniotic fluid would not explain the enchondral aplasia present in the deformities described. The histopathological report of the case in question, showing evidence of a pluriglandular dysfunction, tends to clarify the pathogenesis of the achondroplastic, suggesting it not as the sole factor but as the most frequent one.

Osteochondritis Dissecans. Milton J. Geyman. *Radiology*, XI, 315, October, 1928.

The lesion consists in the segregation of a portion of cartilagenous and subchondral tissue into the joint space. The most common sites are the external condyle of the humerus, and the lateral portion of the mesial condyle of the femur; occasionally the patella. It occurs chiefly in young adult and adolescent males. Trauma is considered the cause by some, a subchondral infectious process by others. The peculiar contours of the bone at the sites of most frequent occurrence, constitutional disease, and heredity, are possible etiologic factors.

In the radiogram is seen an area of subchondral rarefaction; the separated fragment may contain no osseous tissue and may not appear in the X-ray unless separated long enough for secondary calcification and ossification to have taken place. At the site of separation, proliferative changes take place, mainly the formation of fibrocartilage, but at times the laying down of new bone. The separated fragment is nourished by the synovial fluid and slowly increases in size.

Four cases are described, the sites being the patella, the lateral condyle of the femur, the head of the femur, and the external condyle of the humerus.

In all these cases there was a definite history of trauma and the author concludes that all the process is usually on a definitely traumatic basis. Any part of the knee or elbow joint, and rarely the hip, may be the source of this type of loose body.

A Case of Paget's Disease. D. Costantini. *Radiol. Med.*, XIV, 1105, December, 1927.

Description of a case of Paget's disease in which the roentgenological examination revealed very different bone lesions in the various skeletal segments. The differential diagnosis (chronic infectious osteomyelitis, osseous tuberculosis, osseous syphilis, osteitis fibrosa of Recklinghausen, osseous leontiasis of Virchow) would have presented many difficulties if there had not been other factors, such as the clinical course, the thickening of the bone accompanied by irregularities and characteristic deformities, and the biopsy report, from which it was possible to show two very distinct processes, the one of productive osteitis and the other of destructive osteitis. The roentgenological picture had typical characteristics of Paget's disease in a single skeletal segment (tibia), while the lesions of the radius would suggest the question of osteitis fibrosa of the type of Recklinghausen; the cranium presented lesions only in the frontal bone. The author concludes that the roentgenological examination of the osseous system presents great difficulties inasmuch as bone diseases of unknown origin, osteitis deformans of Paget, osteitis fibrosa of Recklinghausen, osseous leontiasis of Virchow, may produce in the skeleton alterations of form, of site, and of distribution which are very variable.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

Boeck's Sarcoid—Report of a Case with Visceral Involvement. Mitchell Bernstein, Frank Konzle-mann and D. M. Sidlick. *Arch. Int. Med.* 44:7 (Nov.) 1929.

The author writes of a case of Boeck's sarcoid with visceral involvement. A postmortem examination revealed lesions similar to the skin lesions in the epicardium, bronchial mucosa and mucosa of the ileum. To support the author's belief that Boeck's sarcoid is a chronic infectious granuloma that may be caused by syphilis as well as by tuberculosis, the Wassermann reaction of both the blood and the pleural fluid was strongly positive. The patient had severe dyspnea, which is not common in tuberculosis of the lung, but is a prominent symptom in syphilis of the lung. A negative reaction for tubercle bacilli was the result of many examinations of the sputum. The pleural fluid of the patient inoculated into guinea pigs gave a negative reaction and a section revealed areas of perivascular and perineural mononuclear infiltration and independent collections of mononuclear cells in the liver and elsewhere.

Our attention is called to the fact that most studies of the etiology of Boeck's sarcoid are concerned with the presence of an accompanying tuberculosis, so the presence of systemic lesions are many times overlooked. Infiltration of the lungs, beginning at the roots and spreading toward the bases or upward and associated with clear apexes is not common in tuberculosis, but is consistent with syphilis, and the authors feel that when patchy, discrete infiltrations of the lungs are associated with Boeck's sarcoid, they are sarcoid lesions. Another patient with sarcoid lesions was observed; the history and the Wassermann reaction on the blood suggested syphilis, but the results of the examination of the chest suggested chronic tuberculosis. The authors were unable to isolate tubercle bacilli from the sputum.

Industrial Dermatoses; Their Causation, Recognition, Prevention and Treatment. S. Overton, *Brit. J. Dermat.* 41:255 (July) 1929.

Overton, in discussing industrial dermatoses, comments on the fact that returns from the Workman's Compensation Act for 1927 show that for factories more certificates of disablement were issued for skin conditions than for any other condition requiring compensation. The author states that there is an increasing number of claims due to industrial dermatitis, contracted by the worker in his employment. Industrial dermatitis is caused by a number of irritants, which are of animal, vegetable and mineral origin. For the last three years, alkalis have held first place in the reports of the chief inspector of factories. Paraffin, petrol and naphtha, sugar dyes, particularly sulphur and basic, and "accelerators" that were used to expedite the vulcanizing of rubber were found to be among the important causes of industrial dermatitis; they are decreasing agents.

Those who were more subjected to this dermatitis were engineers, bakers and flour confectionery workers, platers, dyes and calico printers, in the order named. It is stated that the author, as a result of practical experience has found the following suggestions to be of value in the prevention of industrial dermatoses: (1) The use of emollients before and after work; (2) complete removal of the irritants encountered at work, by harmless methods, several times per shift; (3) inspection of hands and arms by experienced observers to enforce (a) early treatment of minor injuries, cuts and burns, (b) scrupulous cleanliness of hands, arms and overalls, (c) removal from irritants and prompt treatment in early cases.

Overton stresses the importance of recognizing that a dermatoses is of industrial origin, and that certain irritants produce localized lesions, besides causing a dermatitis, such as chrome and alkalis. The site of the dermatitis and knowledge of the irritants in apparently innocuous occupations are among the subjects also briefly discussed.

Industrial Dermatoses—Their Causation, Recognition, Prevention and Treatment. W. Dyson, *Brit. J. Dermat.* 41:264 (July) 1929.

The author writes of the discussion, by Dyson, of the cases of dermatitis which cannot be distinguished from cases of dermatitis commonly known as eczema. Such cases, commonly seen in bleachers, dye workers, chemical workers, plasterers, rubber workers, french polishers and hair dressers, are not recognized by Dyson as different from eczema. They are eczematous occupational dermatitis, and any condition predisposing to eczema will predispose to occupational dermatitis. Hyperhydrosis is a common factor in its production and xerodermatous and ichthyotic subjects are more susceptible than others. Idiosyncrasy is not mentioned. On the subject of sensitization, the author states that prolonged or repeated attacks of dermatitis may produce a general sensitization which has many of the characters of an "anaphylactic state." Seborrhea and secondary pyogenic infection, in his experience favor the development of a general sensitization, although it may develop without the presence of any of these factors.

Reference is made to McGlasson's work on blood sugar content in dermatitis. With this idea in mind, Dyson examined fifty patients with all types of eczema and eczematous occupational dermatitis, and found that when purpura was intense and there was no discharge, the average blood sugar content was high, but when the inflamed surface was discharging, the average blood sugar content was less. It was suggested that these results might be due to the liberation of histamine from the epithelium, which causes a liberation of glycogen from the liver by stimulating the secretion of epinephrine, and experiments are cited in which injections of histamine were given to raise the blood sugar content, with negative results. To determine whether an anti-anaphylactic state could be established and the patient gradually desensitized, small repeated doses of toxin, producing the anaphylactic state, were given. An injection of one cubic centimeter of either blood serum or whole blood was injected

at weekly intervals in seventeen cases. In ten of the cases, the patients made steady progress toward recovery; in most cases, the itching ceased after one or two injections. In one case the condition had cleared up after the patient had received eleven injections, but he had a relapse within seven weeks following, and showed no improvement on subsequent injections. In ten cases the patients made steady progress toward recovery; four other patients showed no response to treatment; and in two cases the injections were discontinued.

Blastomycosis. M. Sydney Thompson, Proc. Soc. Med. 22:1535 (Oct.) 1929.

The author states that a patient had not suffered from skin troubles previous to an examination for a dental abscess in the lower part of the right side of the jaw. The abscess burst through the skin, followed by a swelling below the left eye. The later lesion gradually softened and decreased in size until about eighteen months before examination, when a sinus appeared on the left side of the neck. Then a small "pimple" appeared on the left side of the nose which remained in spite of all forms of treatment. When the patient was first seen, the submandibular gland was swollen and inflamed. There was an ulcer below the left lower lid, heavily crusted over, the edge of which was clearly defined. When the scab was removed it was an eighth of an inch in width and made up of closely packed papillomatous processes. A great amount of pus was extruded from the center of the ulcer, which left a large hole. There were many little scabs scattered over the face, underneath tiny papillomas and a pus area. Scabs, pus, and papillomas completely occluded the left nostril, and both of the nares were thus affected, causing the whole nose to be greatly swollen and covered with heavy crusts. Five days after the administration of potassium iodide, and the dose gradually increased, there was definite improvement, as the papillomatous processes were flatter and less distinct, and the patient herself volunteered the statement that she could breathe through the left nostril for the first time in two months.

Von Recklinghausen's Disease. A. M. H. Gray. Proc. Roy. Soc. Med. 22:1536 (Oct.) 1929.

The author states that a boy who had apparently had an eruption since he was a baby, for almost fifteen years, showed a nerve involvement. There were many neurofibromas; the median and ulnar nerves on both sides were greatly enlarged and noded all the way down. The median nerve could be traced to the wrist, and the ulnar nerve almost as well. The boy, however, had no symptoms and no pain unless the nerves were definitely pressed. He had the three classic features of the disease: molluscous tumors (not large), neurofibromas on the nerve-trunks and patches of pigmentation on the trunk, neck, and back. No history of any similar condition in his family could be traced. The boy's mental condition was normal.

Acquired Epidermolysis Bullosa (?) G. B. Dowling, Proc. Roy. Soc. Med. 22:1536 (Oct.) 1929.

The case of an 18 year old boy, who, three years ago, had blisters develop about his ankles, is a very interesting one. They later appeared on other parts of the body. Each lesion began as a small bulba, that enlarged, broke down and frequently became secondarily infected and ulcerated. The lesions healed and left scars which were chiefly about the knees, ankles, extensor aspects of the legs, hands, extensor aspects of the arms and forearms, elbows, buttocks, and there were a few on the ears, the author writes. The thighs, abdomen, and back were free. There was no family history of epidermolysis bullosa. The patient was healthy in other respects. Since the case was shown, the question of artefact was tested. A soft zinc paste was applied to the legs for two successive weeks; after the first week, several fresh bullae were found beneath the dressing. The observation was repeated with the same result. It was noted that the dressing had not been tampered with in any way.

BOOK REVIEWS

Surgical Clinics of North America (Mayo Clinic Number—Feb., 1930). Volume 10, No. 1. 174 pages with 82 illustrations. Paper \$12.00 per clinic year. Cloth \$16.00 per clinic year. (Issued serially, one number every other month.)

The following is a list of the contributions of this issue:

"Ureteral Transplantation for Exstrophy of the Bladder" by Charles H. Mayo and Claude F. Dixon.

"Vesicosigmoidal Fistula; Gastro-Intestinal Hemorrhage in a Case of Appendicitis and in a Case of Chronic Cholecystitis with Cholelithiasis; Excision of Gastric Ulcer and Posterior Gastro-Enterostomy; Lesions of the Kidneys" by E. Starr Judd, James M. Marshall, and Shattuck W. Hartwell.

"Unusual Tumors of the Gastro-Intestinal Tract" by Donald C. Balfour and Archibald H. Melndoe.

"Intracapsular Fracture of the Hip; Subacute Osteomyelitis and Endothelioma of the Lower End of the Femur; Slipping Epiphysis of Head of Left Femur; Reconstruction Shelf Operation for Congenital Dislocation of the Left Hip; Old Traumatic Dislocation of the Left Hip" by Melvin S. Henderson.

"Volkman's Ischemic Contracture; Bilateral Congenital Dislocation of the Hips; Irreducible Fracture of the Malleoli of the Ankle Treated by Open Reduction and Beef-Bone Screws; Bone Grafting for Delayed Union Following Osteotomy and the Use of a Lane Plate; Tuberculosis of the Hip Complicated by Pulmonary Tuberculosis, Treated by Osteotomy and Arthrodesis" by Henry W. Meyerding.

"Pseudomyxoma Peritoneal of Ovarian Origin; An Analysis of Thirty Cases" by James C. Mason and Robert A. Hamrick.

"Multiple Spontaneous Arterial Aneurysm" by James C. Masson and Harold D. Caylor.

"Bilateral Sigmoid Sinus Phlebitis as a Cause of General Sepsis."

"Acute Fulminating Septicemia Associated with Otitis."

"Spontaneous Bleeding from a Non-malignant Facial Tonsil."

"Delayed Pulmonary Infarct Following Injury to Sigmoid Sinus During Radical Mastoid Operation."

"Effect of Application of Radium in Hyperplastic Frontal Sinusitis". Cases from the Clinic of Harold I. Lillie, assisted by Henry L. Williams, Jr.

"Scarring and Ulceration of the Neck after Irradiation; Reconstruction of the Upper Lip and Cheek; Recurring Cyst of the Floor of the Mouth; Keloid of the Neck; Osteomyelitis of the Jaw; Fibrosarcoma of the Hypopharynx" by Gordon B. New.

"Multiple Pigmented Papillary Nevi of the Face; Pigmented Mole of the Face; Recurring Epithelioma of the Face; Inflammatory Epulis; Fibro-Osteochondroma of the Mandible" by Frederick A. Figi.

"Cardiovascular Reflexes" by J. Markowitz and Frank C. Mann.

"Keratoma: A Lesion Often Mistaken for Sebaceous Cyst" by Albert C. Broders and Elizabeth Wilson.

"The Immediate Response Observed in the Treatment of Cases of Carcinoma of the Cervix Uteri with Radium" by Harry H. Bowing.

"Unusual Tumors of the Spinal Cord" by Winchell McK. Craig.

"Perforation of the Duodenum; Chronic Interstitial Cystitis and Chronic Granular Urethritis; Subacute Appendicitis and Hyperthyroidism" by Claude F. Dixon.

"Complications of Dermoid Cysts of the Ovary; Chemical Hysterectomy" by Virgil S. Counseller.

"A Study of the Vessels of the Extremities by the Injection of Mercury" by Bayard T. Horton.

"Postoperative Treatment of Abdominal Actinomycosis" by Frederick L. Smith.

Diseases of the Blood by Paul W. Clough, M.D., Associate in Clinical Medicine John Hopkin's University. Embossed cloth. Two pages of illustrations in color. 310 pages. Price \$2.50. Harper & Brothers, Publishers, New York, 1929.

This is an entertaining little work of twenty-two chapters on various phenomena connected with the blood, its diseases and dyscrasias, various types of anemias, hemolytic jaundice, splenic anemia, polycythemia, the leucemias, hemorrhagic diseases and transfusions are the outstanding chapters.

As has been pointed out before, these monographs being issued by the House of Harper should find a place in the library of every busy physician.

Surgical Diagnosis. By 42 American Authors. Edited by Evarts A. Graham, M.D., Professor of Surgery, Washington University Medical School. Three Octavo volumes, totaling 2750 pages, containing 1250 illustrations, and Separate Index Volume. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$35.00 a set. Volumes I and II are now ready. Volume III and separate index volume ready March 15, 1930.

The editor of this work on Surgical Diagnosis, it will be remembered, perfected, in conjunction with Cole, gall-bladder visualization, a process which it will be recalled has been of a great deal of aid to internists and surgeons in diagnosing the more obscure forms of gall-bladder disease. He has succeeded in bringing together the opinions of 41 other surgeons, laboratory experts, orthopedists and research workers, to make this a most formidable work on the diagnosis of surgical conditions. Space does not permit acknowledgement of the many well-known authors and contributors to the work, but among them are to be noted: Adson, Blair, Cole, Cofher, Dandy, Hertzler, J. Shelton and John S. Horsley, Edward P. Richardson, Kanavel, Neuhof, as well as other brilliant surgical writers of the country.

The discussion of the fundamentals of the wounds, infections and post-operative complications alone take up 208 pages. The work is finely illustrated, some in color. It should be in the hands of every surgeon and student of surgery.

Diseases of the Chest and the Principles of Physical Diagnosis (Fourth Edition), by George W. Norris, M.D., Professor of Clinical Medicine in the University of Pennsylvania, and Henry R. M. Landis, M. D., Professor of Clinical Medicine, University of Pennsylvania; Director of the Clinical and Sociological Departments of the Henry Phipps Institute of the University of Pennsylvania, with a chapter on the Transmission of Sounds Through the Chest, by Charles M. Montgomery, M.D., and a chapter on the Electrocardiograph in Heart Disease, by Edward Krumbhaar, Ph.D., M.D. Fourth Edition, Revised. 954 pages with 478 illustrations. Philadelphia and London: W. B. Saunders Company, 1929. Cloth \$10.00 net.

This work by Norris and Landis is now in its fourth revision in addition to having been reprinted upon three occasions. This speaks for its popularity and usefulness to the medical profession. The new edition contains a brief account on the part the bronchoscope plays in the diagnosis of respiratory affections. The authors, in their preface, suggest that it will be well for clinicians to remember that the laboratory should be their partner and not their master.

The work is finely illustrated, the text following closely the illustrations. Diseases of the lungs, the pericardium, myo and endocardium are given much attention.

RELATION OF THE ALTITUDE OF SUN TO ITS ANTIRACHITIC EFFECT

Frederick F. Tisdall and Allan Brown, Toronto (Journal A. M. A., March 16, 1929), in reporting the relation of the altitude of the sun to its antirachitic effect conclude that a marked increase occurs in the antirachitic effect of sun-

shine when the sun reaches an altitude of 35 degrees or more. A study of the geographic distribution of rickets shows that rickets is uncommon or exists chiefly in a mild form in those places where the minimum seasonal altitude of the sun is not below about 35 degrees. Conversely, severe rickets is chiefly encountered in those cities where the altitude of the sun is below 35 degrees for some months of the year. The period of the year during which rickets will probably develop can be calculated for any city in the world. The duration of this period may be altered, however, by the prevention of exposure of patients to highly effective sunshine on account of inclement Spring weather or other factors.

STUDIES IN ASTHMA

In making a study of the relation of eczema to allergy, Edward S. O'Keefe and Francis M. Rackemann, Boston (*Journal A. M. A.*, March 16, 1929), conclude that eczema in children begins before the end of the second year in 95 percent of the cases and is slightly more common in boys (58.6 percent) than in girls. In adults, the onset varies from infancy to 60 years of age and is very much more common in women (69.4 percent) than in men. In children, skin tests were positive in 52 percent. The highest percentage of positive tests is found during the second six months. In adults, only 38 percent gave positive skin reactions. In the children, egg, wheat and milk caused positive reactions in all but twelve of the 125 test-positive cases, and, when these foods were eliminated from the diet, improvement occurred in 83 percent; moreover, when the same foods were removed empirically from the diet of the ninety-two test-negative patients, the eczema was improved in 38 percent. Among the test-positive adults, foods caused a positive reaction in only three. Breast feeding among the infants does not have any bearing on the duration of the disease or on the results of treatment. A positive family history of allergy was found in 28 percent of the children and in 37 percent of the adults, which compares with the figure of 42 percent in asthma. Extrinsic causes have been identified in 70 percent of the children but in only 31 percent of the adults, which compares with 40 percent of extrinsic causes in asthma. Among the children a "cure" of eczema has occurred in 36 percent, but in the adult group, of the sixty-five patients followed the percentage is only 18, which, however, compares with 20 percent of "cures" in asthma. In eczema, as in asthma, the data suggest that eczema can disappear spontaneously when the hygienic background is good and ordinary irritating causes are eliminated.

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WHERE IS CEREBROSPINAL FLUID ABSORBED?

That the exit for cerebrospinal fluid is not through the pacchionian granulations (or through Weed's arachnoidal villi) can be conclusively demonstrated by the simple experiment of separating both cerebral hemispheres of dogs from all attachments to the longitudinal, transverse and circular sinuses, asserts Walter E. Dandy, Baltimore (*Journal A. M. A.*, June 15, 1929). It then becomes impossible for any arachnoid diverticula of either gross or microscopic size to maintain direct connection between the subarachnoid space and the great venous sinuses. As a matter of fact, in young dogs in which the operation is performed there is usually—aside from venous connections—only one small area on each side suggesting a pacchionian granulation and forming an attachment between the extensive subarachnoid space and the longitudinal and transverse sinuses of each side. This small attachment is fairly constant in position and lies in the anterior fourth of the longitudinal sinus. The experiment is not difficult to perform, and when the four animals in which it was undertaken were killed four, five and six months later, in not one was there the slightest increase in the size of the cerebral ventricles or in the size of the extra cerebral subarachnoid space. These results prove that it is impossible for cerebrospinal fluid to pass directly into the large venous spaces through a medium of any type. Three other dogs were operated on in precisely the same manner. The survival periods were four, five and six months. Exactly the same negative results were present in each instance. The separation of the hemispheres from the venous sinuses was little more than a gesture because, except for a large anterior cerebral vein and a single fibrous attachment just anterior to it, the cerebral hemispheres were nowhere attached to any of the three large sinuses. The brain fell away on the slightest pressure of the spatula. With the entirely negative effects on the cerebrospinal fluid and its spaces, the claim that such structures are absorbing agents for cerebrospinal fluid becomes untenable. That pacchionian granulations do not absorb cerebrospinal fluid has been shown by the absorption of various dyes in solution—indigo carmine, methylene blue (methylvthionine chloride-U. S. P.) and phenosulphonphthalein. When these dyes are injected into the spinal canal they can be detected in the blood stream in less than two minutes. On the other hand, it takes practically an hour for the dyes to reach that part of the subarachnoid spaces where the pacchionian granulations are presumed to exist. How, then, and where does cerebrospinal fluid absorb? The fluid passes into the capillaries which abound in all the radicles of the subarachnoid space. The cerebrospinal fluid is in contact with the capillaries of the pia-arachnoid. As a matter of fact there are few places in the body where fluids will not rapidly absorb into the blood. The curve of subarachnoid absorption is not greatly dissimilar from that of the peritoneal, pleural cavities, the muscle or the subcutaneous tissue, and in none of these cavities is it necessary to call on specialized structures to explain the absorption of fluid.

PROGRAM ANNUAL SESSION, SHAWNEE, MAY 26-27-28, 1930

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OBJECTIVE FINDINGS IN HEART DISEASE WITHOUT FAILURE*

RUSSELL C. PIGFORD, M.D., F.A.C.P.
TULSA

Mortality tables would indicate that heart disease is on the increase. True evaluation of the statistics is difficult, because of obvious discrepancies in the compilation of figures. The apparent rise in mortality from heart disease may be accounted for, to some extent at least, by more accurate methods of diagnosis. For example, twenty years ago the syndrome of coronary occlusion was unknown; while today, thanks to American investigators who have been responsible for the development of every phase of this syndrome, every textbook of medicine includes an accurate description of such a picture, and most practitioners today are constantly on the alert for this condition. "Acute indigestion" as the cause of death is now in most instances placed in the cardiac, rather than the gastrointestinal column.

In view of the fact that heart disease is on an apparent, if not a real increase, it is felt that one is justified at any time to review the subject of heart disease without failure in order that early diagnosis may be made and proper advice given the patient. It is important that early diagnosis be made; for once myocardial failure occurs, the patient immediately becomes a social liability rather than an economic asset.

The patient who gives no anamnestic findings of circulatory embarrassment presents a real problem for the examiner. It is occasionally necessary to carry the investigation into other fields than the circulatory in order that a proper evaluation may be made of the various findings.

INSPECTION

It is obvious that stripping to the waist is essential for the examination. Frequent-

ly inspection alone will give considerable indication of cardiac distress. Engorgement and fibrillary waves of the neck veins, when present, point to circulatory embarrassment. This, of course, is interpreted in the light of observations made in the sitting position, for it is not uncommon to find pulsating neck veins when the patient is in the dorsal recumbent position. Close inspection may reveal a visible displacement of the apical impulse. Displacement, either to the right or to the left, in the absence of pulmonary disease points at least to mechanical cardiac embarrassment. Having the patient in a correct position, as regards light, will at times disclose the presence of a pulsating tumor, suggesting an aneurism. This can best be elicited by having the patient tilt forward, the light striking from the side.

PALPATION

Palpation is a most important maneuver in the cardiac examination. The importance of this phase becomes apparent when it is recalled that a murmur which is not accompanied by a thrill is rarely an organic murmur. The presence of definite thrills indicates an abnormal flow of blood in the cardiac circuit. Thrills indicate an abnormal flow of blood in the particular region in which they are palpated and always mean cardiac pathological anatomy. Friction fremitus is indicative of changes in the heart or pericardium. Palpation in the second right interspace (aortic region) chest tilted forward and in enforced expiration will frequently elicit a diastolic shock in this region. When demonstrable, this sign indicates increased aortic tension and whether or not accompanied by subjective findings is strongly suggestive of present or future heart distress. Palpation of the pulse which reveals a rate consistently above 100 while at rest, or below 60, points to myocardial disease; for beyond these limits, the physiological integrity of the myocardium is encroached upon. A totally irregular pulse, or alternation of

*Presented at the meeting of the Tulsa County Medical Society, March 24, 1930.

the pulse points again to heart pathology. The totally irregular pulse usually speaks for auricular fibrillation. In this connection, I would like to correct an old impression concerning the rate of the pulse in auricular fibrillation. The older authors were rather emphatic in the statement that auricular fibrillation is associated with a fast pulse. A more universal use of the electrocardiograph has repeatedly demonstrated that a slow pulse is not uncommon in untreated cases of auricular fibrillation. It might be well to add that the ventricular rate in many cases of auricular fibrillation, contrary to the older concept, is affected by exercise and excitement. Alternation of the pulse is not yet clearly understood, but its prognostic significance is of considerable importance. Palpation of the peripheral vessels should be included in the heart examination. While it is quite true that arteriosclerosis may be localized and proved at autopsy to be either cerebral, aortic, coronary, renal, or peripheral, nevertheless, demonstrable thickening and tortuosity of the peripheral vessels, changes in the fundal arteries, or loss of the dorsalis pedis pulsation would suggest a strong probability of at least a beginning sclerosis in the heart or great vessels.

PERCUSSION

Widening of the parasternal dullness, together with increased manubrial dullness, may point to aneurism or enlarged aorta of aortitis. Considerable enlargement either to the right or to the left, or both, of the cardiac area indicates either cardiac hypertrophy, dilatation, or pericardial enlargement. Left cardiac hypertrophy, when proved, usually but not always is indicative of high blood pressure of long standing and is to be interpreted as a definite sign of heart disease. An extension of the cardiac dullness to the right beyond the limits of normal does not mean right ventricular enlargement but signifies an enlargement of the right auricular area. Right ventricular hypertrophy as a rule can only be inferred, as the other symptoms and signs of heart disease are found in which the disturbed physiology alone can be interpreted in the light of an enlargement of this ventricle. Dilatation of the heart when demonstrable is frank evidence of true and permanent myocardial disease. Dilatation follows an over-stretching of the muscle fibers in the heart, a stretching beyond

physiological limits with a loss of muscle tonus. While it may seem possible that with the proper treatment there may be a return to normal size and function, a careful study of these cases of dilatation will reveal that they are practically never capable of the stress and strain of former days. I should like to digress for a moment to condemn the practice of physicians in prescribing exercise for that individual who has passed middle life and who complains of increasing early morning and late afternoon lassitude. The elasticity of the youthful heart in this individual has gone, and sudden strain of physical exertion may do irreparable damage.

At the autopsy table at the Charity Hospital in New Orleans, Herrmann has frequently pointed out pericardial adhesions which were never suspected during life. Experimentally, he and Musser have demonstrated definite cardiac embarrassment attendant upon the formation of pericardial adhesions. With these facts and together with the occasional findings of enlarged cardiac areas without demonstrable cause, chronic adhesive pericarditis is no doubt much more common than is usually suspected. Percussion in various positions may at times show a fixation of the heart and point to possible pericardial disease.

AUSCULTATION

This method of examination is frequently the only method used. Too frequently is the presence of murmurs the only criterion of the examiner for the diagnosis of heart disease. Christian states that every patient at one time or other has had a heart murmur. The majority of murmurs are the so-called hemic or functional murmurs. To identify the murmur as an organic murmur, it is necessary to examine the patient in different positions, to accelerate the heart with exercise or drugs, and rule out certain diseases that might explain the presence of hemic or functional murmurs. To be positive concerning the diagnosis of an organic apical systolic murmur, one must have a demonstrable thrill accompanying the murmur. When an organic apical systolic murmur is demonstrated, it means valvular disease and myocardial distress may be expected. Apical and basal diastolic murmurs always mean organic heart disease. These sometimes disappear

when the heart is rapid, to reappear when the rate again becomes slow. Continuous hums, or blows, heard over the precordial region suggest abnormal currents of blood and are indicative of heart disease. When seen during the first two decades of life and in the absence of a specific history, they are most likely congenital. Pericardial friction sounds need only be mentioned in the light of previous remarks. Persistent hypertension observed during a period of several observations and while the patient is relaxed, even in the absence of demonstrable myocardial changes, signifies future heart trouble. To and fro murmurs heard over exposed arteries suggest arterial venous aneurism; and arterial venous aneurisms may explain the existing hypertension.

CHRONIC NEPHRITIS

Kidney disease, when chronic, is always accompanied sooner or later by cardiovascular changes. It is difficult at times, to diagnose chronic nephritis; but when sufficient laboratory evidence is present to make such a diagnosis, one is justified in suspecting myocardial disease whether or not it can be demonstrated.

ELECTROCARDIOGRAMS

The electrocardiograph is at times a distinct adjunct to the armamentarium of the physician in demonstrating myocardial disease. Various grades of auriculo-ventricular and intraventricular blocks, inversion of the T wave in leads 1 or 2 or both, the occurrence of the coronary T wave, and paroxysmal ventricular tachycardia are definite diagnostic signs of myocardial disease revealed only by the electrocardiograph. They may be strongly suspected by other methods of examination but cannot be proved except by means of the electrocardiograph.

—o—

ABSCESS OF THE LUNG.

R. M. SHEPARD M.D.
TULSA

Abscess of the lung has been of interest for several years and especially so the last two years. The literature and clinical cases have been studied from many points of view. When a patient has a delayed recovery following a general anesthetic and surgery or pneumonia, one is inclined to suspect pulmonary tuberculo-

sis, which often happens and must be differentiated. Frequently after a few days following surgical procedure, especially the upper abdominal area, the patient will have a chill and begin running a septic temperature without any perceptible cause to be found around the operative area. In these conditions a lung abscess should be diligently searched for and differentiated from pneumonia, tuberculosis, or acute infectious conditions. Lung abscess in past years has received small attention. More recently with the advent of the X-ray and more experimental bacteriology lung abscess has been diagnosed as a common complication.

There has been two schools of workers; those believing lung abscess to be aspiratory in origin and the other thinking of it as an embolism and infarction. The former base their conclusion on the number of abscessed lungs following operation on the upper respiratory tract. Such men as Cutler¹, Weidleim and Herrmann², are inclined to embolism and infarction. The experimental work of these and other workers seem to focus on the fact that a small percent of lung abscesses may be aspiratory in origin and only when the material contains anaerobic bacteria or sufficiently occlude the bronchus to prevent the passage of air and damage the bronchial wall. Cutler, Weidleim, and Herrmann were able to produce enlarging pulmonary lesions with exudate containing the oral fusospirochetal organisms by emboli. Therefore the data available leads to the belief that we have two types of lesions, the bronchitic and the parenchymatous; the bronchitic most likely to be aspiratory and the parenchymatous embolic. Then there are lung abscesses following local infection such as pneumonia and fusospirochetal. Because of the similarity of symptoms of chronic abscess and pulmonary tuberculosis they must not be confused. The lack of physical findings in early abscess necessitates the frequent repeated use of the X-ray. The case reported below will demonstrate the inability to diagnose the abscess during the first few days of clinical symptoms and requires repeated search and raying. An acute abscess formation following surgery or pyogenic organisms may be ushered in by severe chill, high fever, cough, and expectoration of foul putrid material. The early symptoms of lung abscess may be more insid-

ious when of less virulent organism developing in an otherwise healthy person as pain, not aggravated by breathing, dry hacking cough, very little sputum, chills or chilliness, elevation of temperature, anxious facial expressions soon followed by more profuse expectoration of very foul odor sometimes greenish but mostly rusty chocolate color. The fever becomes higher and remains so until there is an evacuation with free drainage which is often spontaneous into the bronchus. Physical signs depend on the size and location of the abscess but generally very obscure. There may be signs of consolidation, bronchial breathing, increased whispered voice, and a few irregular rales similar to those found in a small area of tuberculosis. The X-ray will show the typical dense shadow homogeneous in character, thinning irregular border surrounded by fairly normal looking lung tissue. The X-ray pictures should be made every few days. If the first picture is made with the first clinical symptoms it may not show any shadows as mentioned above, and should be repeated. Later during the illness a fluid level may be seen in the shadow which is pathognomic of cavitation. The sputum contains shreds of fibrin, pus cells and tissue cells. When collected in a conical glass will settle in three distinct layers.

The following case is typical of a wandering abscess the predominating organism the bacillus proteus vulgaris which is of low virulence. This abscess case report reveals the pathology change by the healing completely of the foci as other areas are broken down by the invading organism. The X-ray pictures further show cavity formation and cavity healing without infiltration of scar tissue around the cavity wall.

REPORT OF CASE

Male, 39 years of age. Married, two children; ages 6 and 10. No family history of lung affection. Past history: Measles and mumps during childhood; gunshot wound of right arm in 1920. Excellent previous health. No history of tonsillitis nor other throat infection. Frequent tuberculous contact the past ten years because of his work among the tuberculous patients.

This patient appeared for examination November 3, 1928. Complaining of pain near angle of scapula, deep dull aching in

character not altered by respiration. Generally feeling of malaise, slight cough and no sputum. History of onset, night of October 31, 1928, patient awakened after midnight with a feeling of having slept in a cramped position of the right chest. Pain becoming gradually worse until seen November 3, 1928.

Physical examination November 3, 1928: patient well nourished. Anxious expression of the face. Weight 158, temperature 99, pulse 80, respiration 22, blood pressure: systolic 120, diastolic 80. Nothing abnormal elicited in the chest by palpation or percussion. Auscultation revealed slightly increased broncho-vesicular breathing; increased whispered voice and few rales between the angle of scapula and vertebral column, resembling tuberculosis.



PLATE No. 1.

An X-ray stereogram was made on November 3, 1928, which presented no shadow of abscess formation as is shown in Fig. No. 1. The patient is a professional man and continued with his routine office work. November 5, 1928, he began expectorating a small amount of chocolate colored putrid material with a foul odor. The temperature was still running 99 to 99.6. November 6, 1928 the patient went to bed with more marked spasmodic cough and more expectoration; temperature becoming higher. The blood count showed a leucocyte count of 10,000; hemoglobin 84 percent differential normal, the urine was negative. The upper respiratory tract and accessory sinuses were carefully examined but revealed no path-

ology. The sputum and cough became more severe and the paroxysms were accompanied with vomiting because of the putrid sputum and foul odor. The temperature for six weeks ran 101 to 102, then gradually subsided. The sputum was 6 to 12 ounces during a 24 hour period. The X-ray January 4, 1929 revealed an abscess as shown in Fig. No. 2.



PLATE No. 2.

The patient was out of bed and returned to his office January 10, 1929 against advice. At this time the weight was 125. The succeeding five months the patient would have periods of 2 to 4 weeks of normal appetite, temperature and very slight cough and expectoration, gaining in weight. Following each period of quiescence there would be 24 to 48 hours of an absence of cough and expectoration followed by slight chill, high fever and sweating which would last about two days when profuse expectoration would relieve the symptoms. Each time an X-ray would show a new area of lung involvement with healing of the old focus. The acute exacerbation would show an elevation of leucocyte count which would return to normal following free drainage.

May 5, 1929 a severe attack of pleurisy developed that required three hypodermics of pantopon for relief. Codeine was given for two weeks because of the pain. The X-ray at this time showed marked pleuritic involvement and an abscess involving the parenchyma of the right lung beneath the pleura in the anterior axillary line near the 5th and 6th interspace. Patient was out of bed again June 7, 1929

and was in remarkable condition clinically until another attack July 15, 1929. The X-ray finding at that time is shown in Fig. No. 3, which was the first cavity

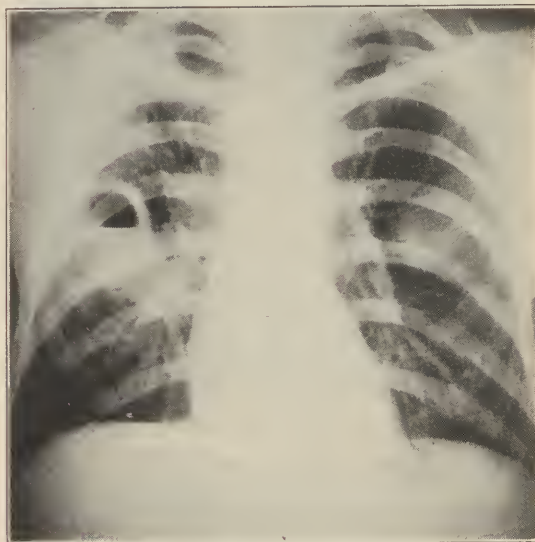


PLATE No. 3.



PLATE No. 4.

formation. The abscess reached the base of the right lung, the extent of pathology is shown in Fig. No. 4, made September 9, 1929. A phrenic neurectomy was done September 12, 1929, which relieved almost completely the severe paroxysms of coughing, the result of which is shown in Fig. No. 5, made September 19, 1929.

The sputum was persistently negative for any organism until April, 1929, when we found sacks of dark color containing innumerable bacilli of *porteous vulgaris* actively motile in the fresh specimen and



PLATE No. 5.

ranging from 5 to 40 microns in length, culturing well both aerobically and anaerobically. Being more prolific anaerobic. These bacilli were found periodically until November, 1929.

Neosarsphenamine was given October 26-28-31, which showed complete saturation by embarrassed respiratory reaction. Other treatment was postural drainage and codeine for cough. It was difficult to convince the patient of the necessity of suppressing the cough until the phrenic neurectomy was done then codeine was readily taken. The patient has made an uneventful recovery and has been free from all symptoms since about November 15, 1929. The result is shown by X-ray Fig. No. 6, made February 4, 1930.



PLATE No. 6.

The primary goal in any abscess is drainage preventing invasion of new areas and destruction of the invading organism as far as possible. Treatment is medical, postural drainage, pneumothorax, arrestment of cough, phrenic neurectomy, absolute bed rest. Open surgical interference should be the last resort and only when the above methods have been used. Then when the abscess is near the pleura and adhesions have naturally formed or been artificially produced.

Singer and Graham³ report a mortality of 46 percent with operation. They quote Lockwood reporting 1117 cases operated with a 34.6 percent mortality. In Lockwood's own series a surgical mortality of 41 percent. But this mortality rate should not deter the surgeon when the more conservative treatment fails.

CONCLUSIONS

1. Lung abscess must be differentiated from pulmonary tuberculosis because of similarity of symptoms.

2. Physical and X-ray findings may be negative during the first few days of clinical symptoms.

3. Non-tuberculous cavities of the lung will heal without infiltration of the cavity wall and casting no X-ray shadow.

4. Perhaps the most disconcerting sequelae of surgical operation are lung abscesses.

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TREATMENT OF ANKYLOSIS BY ARTHROPLASTY—REPORT OF CASES*

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The treatment of ankylosis is a difficult problem. It is important to maintain good functional position of a joint in which ankylosis is likely to take place. On review of the literature on arthroplasty, it is astounding to note the small number

*Clinical material taken from records of the Bone and Joint Clinic, Tulsa.

of joints which have been maintained in the most advantageous position in the face of ankylosis. This has been an extremely careless attitude of a large part of the medical profession, as many stiff joints may be functional parts when in the proper position. Malposition often leads to many secondary deformities which add greatly to the complications of the future operative procedure. In our daily practice, we see ankylosed knees with 35 to 50 degrees of flexion, knock-knee and subluxation.

The exact position for ankylosed joints is argued by authorities, but the variation is usually small and the consensus of opinion at present seems to be in brief—the shoulder in abduction of from 45 to 60 degrees with 5 to 10 degrees forward of the sagittal plain; the elbow in about 90 degrees of flexion, unless both elbows are involved; the wrist in hyperextension; the spine in hyperextension; the hip in 5 to 10 degrees of abduction and about 10 degrees of flexion and the ankle at right angles to the leg.

The actual treatment resolves itself into three procedures: manipulation, dissection and arthroplasty. The first two groups have proven more or less unsatisfactory and the latter has come to be the operative method of choice. When it has been determined that a patient's disability warrants an attempt at mobilization, the following factors must be considered: Will the joint lend itself well to arthroplastic measures; what is the origin and nature of the ankylosis; if it is infectious, is the disease quiescent; are the circumstances of the patient favorable from a social and occupational standpoint? Mobilization is justified, practically, in only five joints, namely: the temporomaxillary joint; the elbow; the knee; the hip and the first metatarsophalangeal joint. It is never considered in the ankle joint.

Mobilization, in purely traumatic cases, has some of the best results. Cases of acute infection, where sufficient time has elapsed (1 1-2 to 2 years since acute symptoms have subsided) are the next choice. The gonorrheal type lends itself the best of the last group. Tuberculous joints are rarely done. The osseous variety and the fibrous type, in which the cartilage of the joint has entirely disappeared, represent the largest group of cases in which mobilization may be considered.

There is another possibility which may enter the realm of mobilization; the fibrous union which is more firm and allows a small amount of motion. The presence of limited motion in a joint is often more harmful than good because it is more easily strained and injured by breaking up old adhesions. Such a joint is extremely painful. It is a matter of opinion which variety, the osseous or fibrous, is more satisfactory for arthroplastic measures.

The condition of the bone and musculature is an important factor in deciding upon mobilization measures. Bone atrophy or osteoporosis makes the operation difficult, especially in remodelling the bone ends. In some cases, where there is extreme bone decalcification, there is a definite contraindication. The important muscles which control the joint must be carefully checked; the presence of scar or bound down muscles makes the outcome of the operation questionable. Atrophy of the muscles has a very important bearing on the case. If extreme atrophy exists, it is impossible to begin normal action early, which is a very important step in the after treatment of the operation. In long standing cases, this condition should be treated by massage and voluntary contraction of the muscles.

Age is a factor worthy of consideration in that the operation should not be done until epiphyseal growth has ceased. It is usually impossible to remove enough bone to secure motion without danger to the epiphyseal line. The age most preferable by leading authorities is between twenty and forty years.

The patient's general condition should be thoroughly gone over for possible foci of infection as there is danger of recurrence of an infectious process following operation. The general occupational and social status are vitally important in deciding upon mobilizing a stiff limb, which may be a great handicap to one person and may be only an inconvenience to another. The after treatment is long and painful, requiring the entire cooperation of the patient. Extreme shortening is a contra-indication to arthroplasty. Slight shortening may be compensated by a lift on the shoe.

The all important thing to the patient is the end result. In general, arthroplasty cannot restore a normal joint but in most cases it creates an articulation that is sat-

isfactory from the viewpoint of service. In order to fulfill the requirements of a good arthroplasty, the new joint has stability; it is strong; it adapts itself well to weight bearing, and the easy motion makes the limb a functional and serviceable member.

The fate of the fascia and its actual function in the joint is an interesting one which has not been definitely decided. Kirschner's opinion is that the flap must entirely disappear, otherwise it would hinder mobilization by the formation of adhesions. He believes that the flap forms fibrous tissue and adheres to the articular surface. Putti is of an entirely opposite opinion as reported in his experience on dogs. His idea is that the fascia maintains its original histologic properties. MacAusland believes that the flap is transformed into connective tissue and acts as a cover, which, under the influence of motion secretes a fluid which lubricates the surface.

ARTHROPLASTY OF THE ELBOW

An ankylosed elbow is more objectionable than a stiff joint any other place in the body. Most joints, even though ankylosed, when placed in good position, can function to a reasonable extent, but there is no satisfactory position for a stiff elbow. They are seldom, if ever, ankylosed in good position. In view of the great inconvenience of a stiff elbow, it is fortunate that it is the most satisfactory for arthroplasty. Previously mentioned indications and contra-indications must all be considered before operation.

TECHNIQUE

The arm is prepared from the tips of the fingers to the shoulder; the thigh on the opposite side is also prepared so it is possible for two operative teams to work simultaneously without interference. No tourniquet is used due to the danger of musculao-spiral nerve injury. The incision is made laterally, extending from well above the condyles down on the forearm. The skin is then covered with sterile stockinette which is rolled on and an opening just the size of the skin incision is made. The covering is sutured to the skin edge with linen to relieve all possible chance of contamination from the skin. The capsule is opened and all tissue removed from around the joint. The ulnar nerve is isolated and protected from injury. The head of the radius is removed and the entire

joint opened by means of a curved or straight osteotome. We have found it unnecessary to sever the triceps tendon, as most authors do. The ulna and humerus are disarticulated and all chronic inflammatory tissue and excess bone are removed. The lower end of the humerus is rounded off, care being taken to clean out the olecranon notch. The end is then rounded with a rasp or file. The joint surfaces are made to fit well to prevent instability. We believe that, by the removal of the head of the radius, we eliminate future complications and often secondary operations. In our cases, there has been no evidence of instability as a result of it. The flap of fascia, large enough to cover the distal end of the humerus, has been removed in the meantime from the opposite thigh and is placed over the distal end of the humerus and held by purse string suture. The ulna is placed in position; the remains of the capsule are closed and the wound is closed in layers. The arm is placed in the usual splint, flexed at about 90 degrees with slight traction on the elbow.

AFTER TREATMENT

The after care is the most vital part of the arthroplasty. The patient is required to be under observation for a long period of time. After a week to ten days, if the wound is healed satisfactorily, passive motion is begun. The motion should never be forced, and especially in the presence of pain. Mild physical therapy, in the way of light massage and heat should be administered. In a month to six weeks, voluntary motion may be begun. The progress should be carefully checked, by radiographs, to determine the condition of the joint.

CASE REPORTS

Case I — L. R., female, age 20 years, with history of infectious arthritis of right elbow and knee with complete ankylosis.

Examination: Shows complete bony ankylosis of the elbow and knee; forearm in about 165 degrees of flexion and complete pronation with no motion, either in pronation or supination, flexion or extension.

Result: On January 16th, approximately six months following operation and a non-eventful recovery, the patient could bring arm into 148 degrees of extension and 36 degrees of flexion. There was 40

degrees of pronation and supination. Effort is still being made to increase this condition by physical therapy.

Case II— J. L. C., female, 20 years, history of infectious arthritis of left elbow with complete ankylosis.



Examination: Shows complete bony ankylosis of elbow in 160 degrees flexion; no motion in flexion, extension, pronation or supination.

Result: On January 20th, one year and two months following operation, arm could be brought to 150 degrees extension; 40 degrees flexion, and pronation and supination have a range of 60 degrees.

Case III—L. D., female, colored, age 22, with history of infectious arthritis.

Examination: Showed 10 to 15 degrees of motion with the arm in 165 to 170 degrees of flexion; forearm in supination.

Operated and arthroplasty done September 21, 1927.

Result: Examined in December, 1929, 2 years and 3 months following operation and found to have 105 degrees of motion and good stability.

CONCLUSIONS

In a short series of cases we have found arthroplasty of the elbow to be extremely advantageous in treatment of ankylosis of the elbow. It gives nearly normal range of painless motion and enough stability for moderate work.

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THE TREATMENT OF THE TRANSUDATES AND EXUDATES

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Just what conditions must be present in order to produce a transudate is not quite clear. There are probably several factors which separately or combined may cause it. Exudates, of course, are the result of the inflammatory reaction of serous membranes.

The disappearance of a transudate or edema is, according to Vasquez, accomplished in two stages. In the first stage there is a diminution in the extent of the edema. The cyanosis or pallor is lessened, the extremities feel warmer and there is a general feeling of well being experienced by the patient. There is no loss of weight

and no increase in the urinary output as yet. This period is of short duration and is spoken of as the stage of mobilization.

The processes operating at this stage are as little understood as the conditions which brought about the edema in the first place, but it is fairly certain that most of our diuretics have their action at this stage of mobilization in the periphery, especially is this true of salyrgan. The fluid in this first stage has not yet passed the renal barrier.

In the second stage, diuresis is established and is attended by a corresponding polychloruria. The quantity of urine reaches from two to four quarts and the chlorides from two hundred to three hundred grains or more in twenty-four hours. The edema disappears, the weight decreases and the functional disorders disappear. These are the favorable cases. In others the process is not so simple. In these cases, especially if the disappearance of the edema is rapid, there occurs a series of symptoms which may be of variable severity. They are especially apt to occur during the first stage, the period of mobilization or resorption. They consist of vertigo, headache, cardiac pain and general weakness. In the more serious forms there occurs rebellious insomnia, hallucinations, intense muscular pain and swelling of the joints much like that which follows the injection of specific sera.

Gouget has suggested that this syndrome is an anaphylactic reaction caused by the re-entry into the blood stream of the transudates. To support this it has been noticed that this syndrome has never occurred, when the serum, no matter what the quantity, is eliminated externally. Another important observation is that they occur before the diuresis. Abrami has shown that a general anaphylaxis can be provoked by injecting the patient with his own serum intravenously. The avoidance of this syndrome and the relief given to a weakened heart by the drainage of from two to five quarts of fluid are certainly sufficient indication for the use of needles such as the Kerschman.

This procedure of subcutaneous drainage is not new but it has been the practice to employ it when all other means of removing the edema had failed and the patient became so waterlogged that it seemed the skin would burst. It should be used early. The technique is simple and is as

follows: The patient should be in a comfortable chair with an elastic or roller bandage applied from the toes to the knees and the needles inserted into the thigh or trunk in the most edematous areas. No local anesthesia is needed, simply paint the skin with iodine and insert two to six needles. A rubber tube connected with the needles and leading to a receptacle have some siphonage action. The needles should be left in for about twelve hours. In that time, from two to five quarts of fluid can be removed. It is an interesting fact that if salyrgan is given after the needles have drained, the output of the fluid will be much increased, this giving further evidence that its action is in the periphery. This method, in addition to being very effective, will greatly lessen those unpleasant anaphylactic reactions sometimes encountered, aids a weakened heart and certainly does the kidneys no harm.

The effectiveness of salyrgan in removing fluid from the tissues and cavities is marked and is superior to that of any other drug now employed. Ammonia chloride in doses of twenty grains every four hours by mouth seems to enhance its effectiveness. Salyrgan is given either intravenously or intramuscularly though the intravenous route is preferable. One c.c. can be given for the first dose and if the tolerance is good it may be repeated every third day. It is common for the urinary output to be increased from less than one pint to from three to five quarts in twenty-four hours. Cases of severe colitis or hemorrhagic nephritis are extremely rare from the judicious use of this drug. Heart failure and nephritis do not contradict its use.

It is not necessary to know the cause of the edema in order to use salyrgan and it is equally effective in removing exudates. If it is known that an edema is caused by a nephrosis, urea is very safe and effective if given in high doses. From forty to eighty grains should be taken daily and it can be made palatable by mixing with strawberry jam. Always remember that in a nephrosis there is a low blood pressure and a high albumin and that syphilis is a frequent etiological factor. After the edema is gotten rid of, the albumin often disappears.

The myxedema of hypothyroidism is not in the nature of a transudate, but when encountered in the lower extremities only,

may be somewhat confusing. It does not pit on pressure. The fluid is intracellular and not intercellular. Thyroid extract is of course the remedy of choice.

After a patient is relieved of an edema the cause can usually be accurately determined. Most of the cases we see are the result of right heart failure and these should be digitalized and then fluid and sodium chloride intake sharply reduced.

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SOME RECENT ADVANCES IN ALLERGY*

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Knowledge concerning allergy has been growing rapidly and the literature has increased proportionately, and since the recognition of unusual manifestations and management of patients exhibiting it are among the present day medical problems, it is desirable that we should from time to time take stock of the data that have been accumulated and of the inferences that have been drawn from them. However, I dare say that a compilation of our experiences will convince us that, though we already know a great deal regarding the common allergic states, our ignorance of the subject is still more impressive than our knowledge as evidenced by the constantly increasing reports of manifestations in other diseases, explicable only on an allergic basis.

Since the report of the first case of hay-fever more than a half century ago, modern immunology has been characterized by recurring waves of clinical hope and clinical disappointment. The term "allergic diseases" was applied to a limited group of clinical entities presenting four types of symptom complexes, namely, hay-fever, bronchial asthma, eczema, and urticaria and angioneurotic oedema. With the exception of hay-fever, the overwhelming disappointment in treatment of the other allergic states has served one useful purpose. It has given impetus to the meagre research in allergy started in the early seventies of the past century and has carried those workers into, and stimulated those in, other fields of medicine. I refer

*Read in abstract before the Tulsa County Medical Society, 801 Medical Arts Building, Tulsa, Oklahoma.

particularly to the recent study of infectious diseases, showing the relationship between allergy and tuberculosis, scarlet fever, acute rheumatic fever¹, and acute diffuse glomerular nephritis.^{2,3,4} Time will not permit a description of the train of events which has resulted in an elucidation of many of the problems in allergy and I shall only hint at some of the outstanding achievements during the past few years.

SEASONAL HAY-FEVER

Pollen is probably the most common single cause of sensitiveness in human beings. That the pollen concentration varies in different parts of our country we are all aware. The marked relief noted by patients in traveling to high altitudes and the incessant symptoms of hay-fever experienced by them while traveling through certain sections of the country is evidence that the atmospheric conditions are very variable. Durham⁵ and co-workers made a pollen survey last year which resulted in some very interesting statistics with regards to the pollen (rag-weed) concentration in many American cities. The following is an account of the average daily pollen concentration in numbers of pollen per cubic yard of air: Phoenix, Ariz., 0.1; Philadelphia, 15.0; New York, 50.0; Fort Worth, Texas, 83.0; Chicago, 115.0; Memphis, Tenn., 220.0; Kansas City, Mo., 360.0; Indianapolis, Ind., 470; Ann Arbor, Mich., 590.0; Oklahoma City, Okla., 814.0. Although a comparative study of the results obtained in the treatment of rag-weed hay-fever in the above mentioned cities is not available, satisfactory results are more difficultly obtained in this state than in those in which the pollen concentration is small.

One outstanding achievement in pollen study is the preparation of, and the use of, pollen suspensions by Murphy⁶. The preparation received by the physician in general practice from the pharmaceutical firms and those prepared by the laboratories for those who give hay-fever especial attention are merely extracts of the pollen. Because of the difficulty in completely extracting pollen, as evidenced by the fact that repeated extracting solutions give positive skin reaction in sensitive patients, Murphy prepared a fine suspension of pollen, the individual particles of which were no larger than bacteria. An absorption study in laboratory animals

showed complete absorption when the suspension was injected both intra- and subcutaneous. Clinical use of this suspension is in progress. The method is indeed sound and should prove a more effective method of treatment than has been obtained by the use of extracts.

BRONCHIAL ASTHMA

The multiplicity of factors precipitating attacks of bronchial asthma emphasizes the necessity of a thorough search for the stimuli. In an analysis of twenty-five cases of bronchial asthma, Baldwin⁷ concluded that the stimuli leading to the initial attack could be narrowed into two classes: (1) An infection involving the respiratory tract; (2) specific protein sensitization. However, an analysis of the stimuli leading to subsequent attacks revealed the fact that they could be divided into one or more of three groups: (1) Specific protein stimuli; (2) infections involving the respiratory tract; (3) non-specific excitants including the heterogeneous group of atmospheric conditions, emotional and psychic factors, exertion and irritants.

Some of the unusual stimuli referred to above as causes of asthma are as follows: Kapok, parasites, sandflies, and, a less uncommon offender, house dust.

Cooke⁸ was the first to emphasize the importance of house dust as a cause of bronchial asthma. By using varying extracting solutions he was able to isolate a substance which he believed to be the causative factor in 109 patients. He could not ascertain the exact nature of this substance. During the past few years the report of many investigators of isolation of fungi in house dust, the finding of fungi in the sputum of some cases, suggests that the fungi may be the cause of asthma in those whose attacks are precipitated by association with house dust. Furthermore, skin sensitivity to extracts of these fungi is more evidence that the latter are the etiological factors in these cases. Sufficient data have been collected to warrant culturing house dust with Sabouraud's media in this group of asthmatics.

Brown⁹ has emphasized the importance of testing each patient for kapok before substituting a pillow containing kapok for the usual feather pillow in cases of "feather" asthma.

A case of coryza and asthma due to

sandflies was reported by Parlato¹⁰. He found that a buffered saline extract of the flies produced a positive skin and opthalmic test. A positive passive transfer was demonstrated with the patient's serum, and hypodermic injections of the extracts resulted in a state of hyposensitiveness in the patient as evidenced by diminution of skin reactivity, absence of eye reaction and freedom of the usual symptoms.

A very interesting case of bronchial asthma was observed by Sternberg¹¹. A colored man age 37 years had suffered seasonal asthma for twelve years. The attacks usually began in the second week in July and lasted until the end of September. The history suggested pollen asthma. However, all tests to the pollen, inhalants and foods were negative. The patient felt well when away from home, but at night when in his own bed an attack of asthma would develop in a few hours. When he slept out of doors in his back yard, there was marked improvement. A survey of his home resulted in finding his bed infested with bed-bugs. An extract of bed-bugs was made. Skin tests on controls were all negative, but the negro gave a marked skin reaction and a complete cure resulted in the eradication of the bed bugs.

ECZEMA AND URTICARIA

Not infrequently it is almost impossible to do satisfactory skin tests on patients suffering with eczema. The pathological state of the skin makes interpretation of skin tests very difficult. Furthermore, non-reactors are not infrequently seen. These difficulties lead Rowe¹² to outline test diets which are proving to be helpful in determining the cause of some allergic manifestations. It should be emphasized that strict adherence to these diets are necessary and that no detail can be neglected. For example, Duke¹³ observed one case who was sensitive to pork. The patient's symptoms persisted in spite of the fact that he was not eating ham, pork, or bacon. The patient had neglected one detail, namely, the elimination of lard in cooking. When the latter was effected, subsidence of symptoms resulted.

Patients presenting themselves with seasonal eczema should be looked upon as probable pollen allergy cases. Rag-weed may cause skin manifestations in the form of a dermatitis as well as seasonal hay-fever and asthma. It is important to note that skin reactions are not obtained

by the method commonly employed in determining skin sensitivity. In this group of cases the test is made by the method used in determining rhus toxicodendron sensitivity. A small piece of blotting paper is saturated with a solution of pollen extract and direct application to the skin is maintained for a variable length of time, usually from six to twenty-four hours. Desensitization in pollen dermatitis is often successful, but Sutton¹⁴ advocates the use of very small doses of extract administered intracutaneously rather than the usual subcutaneous injection.

ANGIONEUROTIC OEDEMA

Very little light has been shed upon this uncommon condition. The rarity of this disease is seen by the report of Osler¹⁵. He saw only 16 cases in over 23,000 admissions to the John Hopkins Hospital in twenty years. The fairly common association of Quinke's oedema with such conditions as urticaria and hay-fever suggests that in some instances there may be a connection between this disease and a state of hypersensitiveness to some foreign protein. Undoubtedly angioneurotic oedema may occur in individuals who have a hypersusceptibility; but the history and the cutaneous reactions in patients with angioneurotic oedema seem rarely to furnish any evidence of hypersensitiveness, and in the few patients who respond to foreign proteins, it is not certain that their attacks follow contact with or ingestion of the proteins to which they are found hypersensitive. Rarely a definite history of contact is elicited. I refer particularly to a case of Thomas and Gay¹⁶ which I had an opportunity to observe. A middle aged man, who, by virtue of his work, came in frequent contact with fish. Three months prior to the onset of oedema, which involved the left face, eyelids and scrotum, he had an attack of influenza. The examination revealed an infection of an antrum, drainage of which resulted in a concomitant disappearance of the oedema. Skin tests were positive to fish and several of the common organisms found in the nose and throat. The former certainly played no part in the etiology of the oedema, because he remained at work asymptomatic. There remains one conclusion in this case, namely, that a sinus infection associated with a pyogenic organism initiated the attack of angioneurotic oedema.

HENOCH'S PURPURA

It is of interest to note that in 1914, the year of Osler's last publication on Henoch's purpura, allergy as a clinical entity was just coming to be appreciated. Osler remarked in that article that anaphylaxis was the key that would open the door to this mystery. However, it was not until thirteen years later that the correctness of this suggestion was proven. It has been suggested from time to time that purpura is an allergic phenomenon, but no convincing facts were advanced to substantiate this contention. The one demonstration that has linked purpura with allergy is its occasional occurrence with serum sickness, which is a condition of hypersensitiveness resembling allergy. Alexander's¹⁷ important observations have proved that certain food substances may cause purpura of the type described by Henoch, characterized by purpura, bleeding from the mucous membranes associated with abdominal pain. He has reported nine cases, six of which were undoubtedly due to food as evidenced by a subsidence of the lesions following abstinence of the causative factors and appearance of purpura and development of abdominal pain by having the patient ingest the suspected food. The following is a report in abstract of two of his cases:

Case I—A boy, age 14, first observed in 1928; had suffered from hay-fever the two preceding summers. There was an indefinite family history of allergy, but no history of associated allergic manifestations. Skin tests were positive only to the pollen that caused his hay-fever. During treatment of his hay-fever he developed an attack of severe abdominal pain which was followed shortly by large purpuric spots on the back. A history revealed that, just preceding these symptoms, the boy had eaten a considerable quantity of red plums. After his recovery he was given red plums to eat and within a few hours the sequence of abdominal pain followed by purpuric spots was produced.

Case II—A woman, age 52, first seen in 1928, complained of abdominal pain, blue spots and painful joints, particularly of the knees, wrists and hips; these were moderately swollen but not red. There was an indefinite family history of allergy and no history of associated allergic manifestations. The patient believed that her abdominal pain came after eating apples

in any form. Skin tests were negative. It was found, however, that pork, onions and strawberries caused her symptoms. She remained well while avoiding these foods. After only a small portion of pork had been taken, severe abdominal pain occurred within three hours and purpura within twelve hours. These symptoms were also produced by onions and strawberries. No joint disturbances were thus produced.

Barthelme¹⁸ has recently reported a case, unquestionably due to wheat, tomatoes, beef and egg yolk. A diet free of these foods resulted in an asymptomatic state in three days and disappearance of purpuric spots in a few days. After two weeks on this diet, the patient ate homemade ice cream containing egg. The following day abdominal cramping and purpuric spots were noted. Deliberate feeding of wheat gave rise to purpuric spots, and muscle and joint pains. Ingestion of egg yolk resulted in purpuric spots and abdominal pain.

ACRODYNIA (ERYTHREDEMA)

This infantile and juvenile clinical syndrome characterized by coldness of hands and feet, cyanosis, oedema, desquamation, inanition, insomnia, paresthesias, areflexia, paresis, loss of hair and teeth was described by Swift¹⁹ in 1914.

Since that time much speculation on its etiology has been made including the following: (1) Post-influenzal sequela, (2) upper respiratory infections, (3) avitaminosis. That the onset of the symptoms are from one to several months following the acute infections is evidence against an infectuous etiology. In many cases the diet is a well balanced one and one in which no change has been made. This fact does not support the avitaminosis theory.

In an analysis of the report by Warthin²⁰ of two autopsies made on cases of "acrodynia," there evolves evidence pointing toward an allergic etiology. His cases showed congestion and oedema of the central nervous system (hydromyelia in one case), acute catarrhal gastroenteritis, hyperplasia and hyperkeratosis of the epidermis, marked capillary dilation of the cutaneous vessels, and hypoplasia of the lymphatic system and suprarenal medulla.

Helwick²¹ has noted the similarity of the skin changes in acrodynia and allergic cases. Furthermore, the chest findings

and catarrhal gastroenteritis are similar to those found in foreign protein sensitive individuals.

Sufficient evidence has been presented to warrant a study of future cases with the probable allergic etiology in mind.

ALLERGIC ABDOMINAL PAIN

Rowe²² has made the statement that gastrointestinal symptoms are due to food allergy more frequently than is appreciated by the profession, and it becomes necessary for such allergy to be taken into account in the study of all patients with gastrointestinal complaints. In many of his cases the symptoms of organic disturbance, such as peptic ulcer and cholecystitis, were simulated and no less than 24 per cent of abdominal allergy patients had had abdominal operations because of their symptoms, the relief of which was effected by the elimination of the causative food to which they had been found sensitive. This one observer in addition to the observations of abdominal allergic manifestations by Duke²³, and Balyeat²⁴ and others, emphasizes the necessity of inquiring into the history of patients with suspected appendicitis, peptic ulcers, colitis, diarrheas and unexplained abdominal distress, with regards to possible associated allergic entities, such as hay-fever, bronchial asthma, eczema, urticaria and food idiosyncrasies.

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VITAMINS

F. T. GASTINEAU, M.D.
VINITA

The first knowledge of a vitamin deficiency disease extends back to the time of sailing vessels, when sailors, deprived of fresh fruits and vegetables for long periods of time, developed scurvy. It was discovered as early as 1747, that scurvy could be prevented and cured by feeding orange and lemon juice. The British navy was more especially afflicted with scurvy while the Japanese navy was afflicted with beri-beri. It was not until about 1885, that the Japanese brought beri-beri under control by substituting barley for a part of the polished rice which was then the principal food of the sailors. The grandmothers of generations ago knew that cod-liver oil would help make a strong, healthy baby and that it was considered a good treatment for rickets. The first experimental work which eventually led to the vitamin theory was done in 1881, by Lumin. He states that he fed purified foods to animals that failed to grow until the addition of a small amount of milk in the diet caused the resumption of normal growth. The next work of interest was done by Eijkmann in 1897, when he produced avian beri-beri by feeding polished rice to chickens. He was able to cure this by feeding an aqueous extract of rice polishings. Another great step was taken when Goldberger advanced the theory that pellagra was a deficiency disease. He demonstrated that it was due to the deficiency of the B2 factor which at that time was still considered a part of vitamin B, and he was able to produce the disease at

will by the omission of this factor from the food. His treatment of supplying large quantities of this vitamin in the food is practically the only successful treatment of pellagra that we have today.

Observations on the feeding of vitamins are now being made along two new lines, *viz.*, cancer and puerperal sepsis. If early observations are confirmed there is a great possibility that these conditions may be prevented or even treated by means of the diet.

Altered living condition, made necessary by the march of civilization, are responsible for most of the deficiency diseases. Living conditions in the United States today are better probably, than in any other part of the world, yet the use of prepared and highly refined foods may be the reason why the United States leads in the maternal mortality rate.

The British Medical Journal reports a series of puerperal septicemia cases treated with very large doses of vitamin A. Of the twenty-nine cases reported, five received the treatment and twenty-four did not. Twenty-two of the twenty-four died while all of the ones receiving the treatment recovered. Other cases were treated with seemingly good results but owing to the fact that the blood cultures were negative they were not reported. The treated cases showed a gradual improvement, causing the observers to believe that the vitamin acted by building up the resistance and not as an antitoxin. They are now running a series of cases in which large doses of vitamin A are given to the patient two weeks before the expected confinement and continued through the puerperium.

When guinea pigs are placed on a diet lacking in vitamin A, pulmonary infection occurs, differing from the ordinary infective pneumonia found in the guinea pig. This infection occurs in the lobe of the lung not present in man. A certain percentage recover from this pneumonia and cancer frequently follows in the site of the infection. Implantation tumors in mice can also be influenced by varying the vitamin content of the food. The absence of vitamin A seems to inhibit the growth of implanted tumors and to reduce the percentage of takes. Observers conclude that vitamin A is necessary for the growth of cancer cells as well as for normal tissue cells.

Vitamin A is necessary for the formation of nuclear tissue while vitamin B is necessary for the proper nutrition of nuclear tissue. Thus both are necessary for the production and growth of cells, whether these cells are normal or pathological.

Some work has been done on the relation of vitamins to hormones. Many points of similarity have been found. Some hormones, such as insulin, folliculine, and ovo-insulin may be obtained from both plant and animal substances. It is noteworthy that these substances are also rich in vitamins. Vitamins and hormones are present in nature side by side; the pancreas from which we obtain insulin is also very rich in vitamins; likewise some of the plants from which we obtain vitamins are rich in the female sexual hormones. The anti-sterility vitamin E is closely related to the female sexual hormones in that they are dependent upon each other. Some hormones may be activated by radium while some vitamins may be activated by ultraviolet rays. Pigeons in the last stages of beri-beri may be saved by repeated injections of insulin, while the excretion of sugar in diabetics may be stopped by the administration of extracts of beets and yeast. Vogt believes that the extracts of yeast is perhaps a previous stage of insulin and that the diabetes is due to the lack of this stage in the food. He also believes that pellagra is curable with insulin.

VITAMIN A

Vitamin A is fat soluble and can therefore be dissolved in ether and other fat solvents. It is found in that portion of the fat that does not saponify. It is moderately stable to heat when not exposed to oxidation but is readily destroyed by heat plus oxidation. The original source of vitamin A seemed to be sunshine as it is found in all green colored vegetables where it is held in combination with chlorophyll. In this state it is very resistant to fat solvents but when it is acted upon by the digestive juices it is readily taken up by the system and fat solvents. Animals cannot manufacture it, therefore, the amount in milk, butter, egg yolk, liver, spleen pancreas and other animal products is variable though usually rich, depending on the food of the animal. Purified vitamin A, called biosterin, isolated from codliver oil is photoactive as is also vitamin D. Most, if not all vitamins, are thought to have a particular place in the spectrum. Some

workers attempt to determine the amount of vitamins present by the absorption of the spectrum. It has been found that sunlight and other forms of radiant energy may delay somewhat the onset of symptoms but is of no real value in the treatment or prevention of diseases due to the deficiency of vitamin A.

Vitamin A is essential for growth because it is necessary for the formation of nuclear tissue. It has other functions, however, in that animals deprived of it are less resistant to infections of all kinds. The respiratory tract, the intestinal tract and the eyes being more affected by its absence than the other organs. Glandular epithelium is also markedly affected. In fact, xerophthalmia starts with a dry cornea due to the degeneration of the lachrymal gland. Nyctalopia and hemeralopia are also related to vitamin A deficiency. Urinary calculi have been reported several times in relation to its deficiency, especially when connected with an over supply of vitamin D.

VITAMIN B

"Within the past few years, evidence has accumulated to show that the old vitamin B is really a complex consisting of at least two and possibly more factors. As a result, vitamin workers have given scientific recognition to two factors. The first one which cures beri-beri, promotes lactation and is heat labile is now called vitamin B by the American workers and vitamin B1 by the British workers. The second factor of the old vitamin B complex which promotes appetite, cures pellagra and is thermostable, is now called vitamin G by the American workers and vitamin B2 by the British workers."

Goldberger has also designated this last factor as the P P or pellagra preventive vitamin. Both factors are water and water alcohol soluble. Because most of the information at hand is on the complex, both factors will be discussed at this time. Much of the work on this vitamin will necessarily have to be done over.

McCarrison is authority for the statement that vitamin B stimulates nuclear nutrition and suggests the term "nucleopast" to emphasize this fact. When the vitamin B complex is omitted from the diet, growth and appetite fail and loss of weight follows. Death may occur with or without polyneuritic symptoms. When the

deficiency is not marked usually the animals are anemic, constipated, weak and listless. There is a tendency for all vital organs of the body to atrophy except the supra-renals which have the tendency to hypertrophy.

The B1 factor may be obtained from yeast, whole grain, vegetables, egg yolk, fruits, leafy vegetables and milk. The B2 or P P factor, so essential in the treatment of pellagra, is found in beef muscle, liver, salmon, egg yolk, yeast and tomatoes, though in relatively small amounts in the latter. It is more abundant in yeast than in any of the substances mentioned above.

One thing that possibly needs emphasis is the method of cooking vegetables. Vitamin B being soluble in water is dissolved in the cooking water and may be thrown away if care is not used to prevent such. Over cooking should also be avoided.

VITAMIN C

The lack of vitamin C not only produces scurvy but leads to many related atypical states of ill health, such as loss of weight, hemorrhage of the skin and joints, diseases of the gums, etc. In other words, a general run down condition with some of the symptoms of scurvy present although not enough to make a definite diagnosis. The scurvy of infants is considered by some as one of the atypical conditions. Vitamin C is also necessary for the proper development of the teeth. Its deficiency in the food of the mother will lead to malformations, absence of enamel and early decay of the teeth in the young. "The slogan that a clean tooth never decays is false, for the fate of a tooth is largely determined before eruption. During uterine life and soon after birth, the enamel of the tooth is developed, and at this time the integrity of the membrane and the character of the future tooth is determined in part by the vitamin content of the mother's food" "There is a marked difference in the character of the teeth both as to form and integrity, in the white and colored children of the South, the difference being greatly in favor of the colored children, in spite of their lack of knowledge of the tooth brush. The difference lies, it is thought, in the fact that the negro mother nurses her child longer and more universally than does the white mother and that she eats more rough vitamin-containing foods."

Vitamin C is found in limes, lemons, grapefruit, oranges and tomatoes. It is found also, though not in such large quantities, in carrots, lettuce, spinach, cabbage, apples, strawberries, raspberries, etc. The vitamin content of milk and eggs is variable according to the food of the animal. It is easily destroyed by heat plus oxidation but withstands heat alone fairly well. The tomato, probably because of its acidity, is an exception to this, the canned tomato being nearly as rich in vitamins as the fresh. In milk, vitamin C is particularly susceptible to heat plus oxidation. It is said that unsweetened condensed milk loses most of its vitamins, while the sweetened kind retains a fair quantity. Dried milk properly made by the spray process also retains some of its antiscorbutic properties.

VITAMIN D

Vitamin D is the antirachitic factor which plays a part in controlling the calcium-phosphorous equilibrium and deposition. The most common symptom of vitamin D deficiency is softness of the bones and teeth. It has been shown from experiments on dogs that foods rich in vitamin D, especially codliver oil, irradiated olive oil irradiated ergosterol, help to produce normal dentine, while diets poor in this factor tend to produce hypoplastic dentine. It has also been shown that secondary normal dentine may be initiated in a tooth which had originally hypoplastic dentine and in which caries had already started, by the simple means of adding to the diet some substance rich in vitamin D.

Vitamin D, like vitamin A, originates from sunshine and is photoactive. It is activated by exposing the phytosterol of plants and the cholesterol in animal cells to solar rays either natural or artificial. Exposing the body to the ultraviolet light activates the cholesterol in the cells of the skin. From here it is absorbed into the blood stream. Ergosterol is readily activated by exposure to ultraviolet light but too long an exposure tends to destroy vitamin D. Irradiated ergosterol being many times stronger in vitamin D than any known substance, and sufficiently concentrated that extremely large doses may be given, the question of over dosage has arisen. Those investigating this phase of the subject found that (1) extremely large doses of irradiated ergosterol must be given

daily to produce any ill effects. (2) "Doses as high as 10,000 times the daily curative dose over a period of six months have no effects on the growth of white rats, and no apparent effects on their body functions. (3) "Excessive amounts of vitamin D cause a drainage of mineral constituents from the body with a relatively greater elimination of phosphorus than calcium." (4) "Dosages of 100,000 times the daily curative dose produce anorexia, emaciation, greasy hair, labored breathing, and eventually death." The pathology present in these animals was quite alarming but due to the fact that a dose of 10,000 times the daily curative dose did not produce any symptoms, the margin of safety seems to be quite large. It has been found that toxins may be present in irradiated ergosterol due to impurities present before irradiation. Irradiated alcohol produces a very toxic substance. Several preparations of ergosterol have been taken off the market due to the discovery of these toxic substances.

Ricketts is a disease of the temperate climates. It is not found in the tropics because of abundant sunshine and a climate suitable for the exposure of the body to that sunshine. It is not found in the arctic regions because of the large amount of fish in the diet. The vitamins so abundant in fish originate in the algae and other plant life upon which the fish feed. The larger fish obtain their supply by devouring the smaller fish.

Codliver oil is very rich in vitamin D, containing from 100 to 250 times as much as butter. Vitamin D is found also in fresh raw carrots, alfalfa, eggs and milk products. The amount in the latter two being somewhat variable. As mentioned before, the treatment of ricketts must include a suitable supply of phosphorous and calcium in the diet. However, the only constant factor present in ricketts is the deficiency of vitamin D.

VITAMIN E

Comparatively little is known about vitamin E. It resembles the ovarian hormones in that the effects of the two substances are similar and are somewhat dependent upon each other. Mice fed on a diet containing vitamins A, B, C, and D and balanced in other respects except for the absence of vitamin E, will mature in a normal manner but will not be capable of reproduction. If conception takes place

the fetus is absorbed before maturity. McCollum thinks that the death of the fetus is due to a "crisis in iron assimilation" as the presence of vitamin E is necessary for the proper assimilation of iron. Primary anemia may be a deficiency disease as it responds to liver therapy. The liver being rich in both iron and vitamin E not only furnishes the iron but the vitamin necessary for its assimilation. Vitamin E is contained in lettuce, cereals, fresh meat and egg yolks.

Deficiency diseases are present in man and of course, need treating, but by far the greatest problem is the selection of a diet sufficiently varied and balanced to prevent a lowered resistance and susceptibility to disease. Sufficient vitamins to maintain health can be obtained from milk, milk products, eggs, vegetables and fruits.

It has been said that enthusiasm, when stabilized with common sense, invariably leads to progress. When not properly controlled however, it may impede progress. The study of vitamins is being carried on with enthusiasm and many workers are conservative while others are not. This branch of study is comparatively new, as it has been only in the past few years that controlled animal experiments have been done. Much valuable information has been secured and investigations are being done on a strictly scientific basis. In time, the groundless claims of the enthusiast will be disproven and the useful information will be correlated and put to practical use.

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THIS SINUS "THING"*

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In reading a paper before a medical society it seems usually to be the idea of the writer to impress his listeners with his own importance and wisdom. And since for the past couple of years many of the "higher-ups" have had the the habit of referring to any subject or phase of a subject as a "thing" I have decided to use the word here in *my* subject. The purpose of course, being to impress my superiority upon my listeners. Another reason for using the expression is *that* word gives me a clear field to say anything I want to without getting off the subject. And before I am finished you will discover that I am making no effort to stick close to my subject.

I shall differ with the big men in the profession, however, by avoiding large word, technical discussions, etc., it is, of course true that the deeper and more mysterious a doctor becomes in his discourse the shrewder his fellow physicians consider him. I could go into fine detail about how to do a Caldwell-Luc operation, or a Killian, quote all the big men of Vienna, discuss the objections that have been raised against the operations and in the end you gentlemen would go home not one whit better off regarding what to do with your sinus cases as they come to your office. Therefore this will not be such a scientific treatise as is customary, but if you do not get a point or two which will be useful to you at home, I will be disappointed. I am handling this subject for the benefit of the general practitioner.

"How do you treat sinus trouble, doctor? Do you operate?" "Yes, sometimes." "Do you wash them out?" "Yes, sometimes." "Do you shrink the tissues in the nose and use suction?" "Yes, usually" "Or do you always just shrink the tissues and let it go at that?" "Well, yes, I always shrink, but do not always let it go at that." "Well, when do you use these different things, or what leads you do one thing one time and another at another time?" "Now you are talking more sense. Your diagno-

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sis, and duration of the trouble governs this almost entirely. I say *almost* entirely—it should be entirely, but the patient will not always stand for what ought to be done."

There are three stages in most sinus infections that should be recognized and treated accordingly: (1) The acute inflammatory stage, (2) The pus stage, and (3) The stage of necrosis. Another point to be considered here and which helps to determine what to do is what sinus you are dealing with?

I want to briefly consider and get out of the way the intranasal sinuses consisting of the anterior and posterior ethmoids and the sphenoid. The ethmoids are very frequently troublesome in children and should not be neglected as they usually are. Early in the game with these little patients, if you will keep the nose clean and draining freely, by suction if need be, they will clear up very readily, but if you cannot keep them from catching fresh colds as you go along, your job will be prolonged. In fact the parents will usually tell you that they seem to catch colds easily. This is natural as ethmoid infection makes it easy for colds to get a hold and colds are sure to make a smoldering ethmoid infection flare up. In grown-ups similar treatment may suffice early in the attack, but when the infection has become chronic you are just about up against an exenteration of ethmoid cells. Try first, of course, to clear them up by shrinking and some suction.

Now for the frontal and maxillary sinuses. You may operate your frontal sinuses if you want to, *but you are not going to operate my frontal sinuses and I don't mean maybe*. I think some of the most pitiable humans I have ever seen were those who had had frontal sinus operations, maybe repeatedly, and still they had their pain by spells just as fierce as it ever had been before. Look up into their nose and you will see a large, roomy cavern, very little normal structure, nothing left to treat and probably nothing left to operate upon. What the thunder can you do for a person like that? About all you can do is to give them a hypo in the arm and hope that they will not talk about you later like they are talking about their previous surgeons. Various and sundry operations have been used on the frontal si-

nus and some are used yet, but fortunately we are operating far less on the frontal sinus in the United States than we were twenty years ago. Favorite procedures have been to burr up into the sinus along the duct from the sinus or remove the floor of the sinus by some such operation as Good's. Such procedures as these left a fine large hole into the sinus through which pus could escape, but also left a fine large hole for stuff to escape from the rest of the world into the sinus. Then later the darn hole would close up with scar or granulation tissue and the devil was to pay. Last summer I talked with a doctor from Indiana who had had an operation for something in the nose, he did not know what, the operation being done by one of the best rhinologists in Chicago. His trouble was not relieved. If anything, it was worse. He later consulted a good rhinologist in St. Louis and was told by this gentleman that he had had a hell of a bum operation. So there you are. It is easy to do a beautiful operation in the nose, but it may be another thing to obtain the relief that you are after. I get up in my little shop, known as an office, and study these things over, treat them as I go along, watch the results, compare them with more radical procedures and have about come to the conclusion that the less surgery done in the nose the better, unless you need the money more than I hope I shall ever need it. There are indications for surgery in the nose of course. But why are we likely to get into trouble with our surgery in the nose? And when I say we, I mean all of us including the leading rhinologists of the land. We get into trouble because practically every structure within the nose has a very vital function to perform, and when we go in there and cut into it or cut out a part or all of it some functioning of the nose is gone forever; and I might say here that the nose is not a mere ornament, but has more direct bearing on the health of the rest of the body than any other organ I know of. I believe that any operation on the nose that does not relieve the condition that was to be relieved, or if it relieves this condition but leaves in its stead some other condition that gives as much trouble as the original condition, this, then, is a bad operation.

Now get this point gentlemen: if an acute attack of frontal sinusitis were to hit me I would use ephedrin freely in the

nose to shrink the tissues and promote drainage, and resort to any other measures that would put me in the best possible condition generally. After a day or two, or a few days, if I were not getting some results in clearing up the condition, and especially if I thought pus was forming, I would go ahead using the ephedrin and in addition use suction. From here on out, regardless of what happened, I would go mighty slow about resorting to more radical measures. Likely, I would not have to.

Now, if you will pardon the interlude here, there is another frontal sinus condition that I want to mention that bobs up ever now and then. This is frontal sinus vacuum headache. Usually the patient comes in suffering fierce pain with what he or she is likely to call "sun-pains". Symptoms for the most part are identical with those of frontal sinusitis. Severe pain on one side over the eye, usually coming on about mid-forenoon and easing away towards evening. Extreme tenderness on pressure upon the floor of the sinus back of the supra orbital ridge, pain exaggerated upon stooping or reading. How do you differentiate between this condition then and infection of the sinus? Transilluminate. Probably your X-ray will tell you this also, but I rely upon my transillumination almost entirely for my diagnosis. Transillumination is not infallible, of course, but I miss them very rarely by this method connected with other symptoms and history. Now when you transilluminate an infected sinus, your sinus area is dark. Compare it with the other side. When you transilluminate a frontal sinus vacuum, this sinus is just as clear as the other side. Remember also that the sinusitis pain does not disappear during the night. Now, I know some men, Dr. Dixon, formerly of Oklahoma City, for instance, claims that all of this is due to a maxillary sinus vacuum and not a frontal. I can't see it that way. Anyway, what difference does it make? In either case you shrink your tissues at the entrance of these ducts into the nose, and they both enter at practically the same point, and then you force air into the sinus, probably into both sinuses at the same time. It doesn't hurt the well sinus and presto, the pain is gone in the sick sinus. In March, 1925, one of our good doctors sent a little lady to me with frontal sinus vacuum headache. Upon shrinking the tissues in the nose at the point of entrance of the duct from the sinus and forcing the

air into the sinus to relieve the vacuum, the pain stopped instantly. No more pain until April, 1927, two years later, when she came in again with the same trouble. Treatment the same and pain stopped immediately. In May of the same year nearly two months later, she came back with the same trouble. Treatment repeated and relief resulted, but later on the same day the pain came back and so did she. This time relief was complete and she did not return for just one year. This time one treatment was sufficient to give instant relief which stayed put. That was in April, 1928, and no more trouble occurred until January of this year. Relief was prompt, but did not stay put, so two days later we treated it the same way again. Relief was prompt, but again it recurred so three days later I fractured the middle turbinate and pushed it over toward the septum and thereby exposed the duct more freely. This enabled her to use the ephedrin more effectively at home. Air forced into the sinus gave fair results, but I had her return the following day, even though she was not suffering to speak of. I forced more air into the sinus and a couple of weeks later she called me and stated that she had had no more pain since she last saw me. This is just one of those cases where you have to use your horse sense along with science to get your results. And you can't always outline this on paper ahead of time for there is always some little unexpected something turning up to spoil your beautiful little theoretical air castle.

Now, for the maxillary sinus trouble. Here again we have the stages of inflammation, pus and necrosis. Necrosis is more prevalent with the maxillary sinus than with the frontal sinus. This is a fortunate fact, as we can do more radical operative work on the maxillary sinus with less danger of so much trouble resulting later. I rely here on my transillumination again for diagnosis. I recall missing a diagnosis in one of these cases a few years ago, when my transillumination showed a very dark maxillary sinus. I was not fully satisfied with my diagnosis in this case even to begin with, and a few days later I was sure I had a malignant growth within the sinus to deal with and later this proved to be correct. Early in the game we resort to our ephedrin in the nose for shrinkage, just as in frontal sinus infection, and do not wash them out. After a few days, especially if we feel that there is pus in the

sinus, we resort to our suction. Right here now is where the "big boys" will blow up and ask what I mean by using suction on a maxillary sinus. Well, I find often that we get nice results, although such treatment here is not as ideal as with the frontal. The reason is simply one of anatomy. In the frontal sinus we have our duct escaping from the sinus right from the bottom of the cavity and the pus which naturally fills the bottom of the sinus is easily sucked out. In the case of the maxillary sinus the duct leaves the sinus from near the top of the cavity and since the pus is naturally in the bottom of the cavity air occupies the upper part of the space and therefore the pus is not so easily sucked out. Having the patient lie down for awhile in the proper position would help in removing the pus by suction. However, if we do not get the results by this method soon we had as well resort to washing the sinus out by means of the needle or trocar passed through the paper-like external wall of the nose beneath the inferior turbinate. This is not a serious procedure, but it is not always easy to convince the patient of this, especially society women. Washing out the sinus is not a sure cure for sinus trouble. It will clear up most of your pus cases, but not all of them even. I saw a man one time who had been washed out this way two or three times a week for many months and still he was plenty bad off. A window communication from his sinus into his nose beneath the inferior turbinate was decidedly indicated in his case. Now, we sometimes run onto people who have had maxillary sinus trouble for so long a time that there is a great deal of necrosis of the walls of the sinus and necrotic material practically fills the cavity. An operation here by any method deemed best is the only treatment. Anything short of this is "monkey" business.

Now, men, in summing up: Don't operate your frontal sinus cases except in extremely rare cases. Shrink for the first day or two and shrinking and suction after the first few days. With the maxillary sinus shrink the first few days, use shrinkages and suction after the first few days and if no results, wash out the sinus a few times. In case of chronic sinusitis use the suction in case of the frontal, and in case of the maxillary use washing if suction does not suffice. If you cannot clear up the chronic maxillary by washing then consider your surgery such as

Caldwell-Luc. But if you see your case early shrinkage and suction will get most of them. Very frankly speaking, I would say to the general practitioner that you are safe in using the ephedrin for a few days but after that if you are not getting anywhere, you may be losing valuable time and paving the way for a chronic infection if you continue to treat in this way.

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THE LABORATORY AS AN AID IN THE DIAGNOSIS OF SYPHILIS*

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The laboratory diagnosis of syphilis depends upon the demonstration of the spirillum, (*treponema pallida*) the presence of its antibodies or the cutaneous allergy. The method used in making the diagnosis is influenced by the stage of the disease.

An early diagnosis is to be preferred. First, because the earlier the diagnosis is made the earlier the treatment may be begun. Thereby saving the patient the pain and the inconvenience of a sore throat, skin eruption and other secondary manifestations. Second, because a more thorough eradication of the disease can be effected in less time than is possible in the later stages.

Stokes has shown that the pathological findings of syphilis appear concurrently with the clinical findings. We believe that the clinical and laboratory diagnosis should be complementary and subject to the same human limitations. During the last few years the trend has been to over-rate the laboratory and depreciate the clinical findings. The laboratory should be used routinely in all cases of suspected syphilis but the diagnostician should remember that if he allows the mechanically ordered test to replace the history and physical findings, some incorrect diagnosis will result. The ideal working basis is a good history and physical examination combined with laboratory tests. It should also be remembered that there is no single laboratory test for syphilis that is 100 per cent accurate.

As stated above, the laboratory study of syphilis is limited to: (1) demonstrating the presence of *treponema pallida* in

*Read before the Southern Oklahoma Medical Association December 19, 1929.

local lesions by the darkfield illumination, various staining methods and cultivation; (2) demonstrating the presence of antibodies in the blood or spinal fluid by the complement fixation test; (3) demonstrating the presence of precipitins in the blood or spinal fluid by one of the various precipitation tests; (4) demonstrating the presence of syphilitic, cutaneous allergy by Noguchi's luetin test.

To facilitate the demonstration of the treponema pallida there should be close cooperation between the diagnostician and the laboratory. When a patient, who has a venereal lesion, presents himself for examination a careful history with any treatment that might have been used, should be considered. The initial lesion or chancre appears at the nidus of inoculation in a variable length of time after exposure; ranging from twenty-four to forty-eight hours (in mixed infections) to thirty days or longer. The appearance of the syphilitic lesion is by no means constant. It may vary from a very small, soft abrasion to a large, indurated sore. We have picked up positive darkfields on many lesions that were atypical. Therefore, it is our opinion that a darkfield examination should be made on all local venereal sores.

If the physician learns that the lesion to be dealt with has had treatment the darkfield should not be ordered before the second or third day. During this interval the patient should be instructed to use applications of sterile water or saline, with no other medications.

The following technic is used in the examination:

The sore is thoroughly washed with normal saline and rubbed or scraped until there is a free exudation of serum. Sometimes it is necessary to use suction or apply pressure to accomplish this. The treponema pallida are not always present in the superficial part of the lesion, therefore, it is well to apply pressure enough to obtain serum from the deeper recesses. The serum is put on a clean slide, covered with a cover glass and sealed with cedar oil or vaseline to prevent evaporation.

When the slide is prepared as directed, apparatus properly adjusted and the light correctly focused, the field of vision will have a brownish-black appearance except for the small particles in motion.

A search is then made for the treponema

pallidum which appears as a very delicate, highly refractile, spiral organism; measuring about 24 by .7 microns. The variation in length of individuals is very great, ranging from 4 to 24 microns. These spirilla have short, definite spirals and move with a rotary motion.

When it is impossible to examine a fresh preparation with the darkfield the organism may be demonstrated by making smears and staining by one of the following methods: Burri's India ink; Harrison's Collargol; Goldhorn and Giemsa stain. None of these methods are as satisfactory as the darkfield illuminator.

The cultivation of treponema pallida and the production of the disease from culture was first successfully done by Noguchi in 1912. He and others have cultured the organism directly from the lesion of man, under strictly anaerobic conditions. The morphology and motility of these cultivated spirilli are quite typical.

In cases of suspected syphilis, after the primary lesion has healed, or passed the stage when the above described tests would be practical, the laboratory aid in diagnosis becomes a problem of the serologist. Here the cooperation of the diagnostician, who by combining the history and careful physical examination, determines the test he shall order. The practical test in most of these cases and the one generally used is the complement fixation of the blood serum, the so-called Wassermann reaction.

There are many technics used in the complement fixation test, but the one giving the greatest satisfaction and being most widely used at the present time, is that worked out by Kolmer. It has been our experience that this method is reliable, specific, sufficiently sensitive and should be satisfactory in the hands of any serologist, provided additional antigens are used for a check. In our laboratory, in addition to the Kolmer antigen we use a plain alcoholic and a cholesterinized antigen, and the results have been satisfactory.

We use the Kahn precipitation test in addition to the complement fixation test. The precipitation test has checked with the complement fixation test in from 92 to 95 per cent of the cases. We examine more bloods that give a positive complement fixation than a positive precipitation. Very rarely do we find one that gives a positive precipitation and a negative

complement fixation test. Therefore, we feel, as does the International Serological Congress, that neither test should be used alone. However, where only one test is to be employed we believe the complement fixation test to be the more reliable.

After the appearance of the primary lesion the time required to produce sufficient antibodies in the blood to give a positive complement fixation test, varies with the individual. Craig claims a 4 plus positive may be expected in the following percentage of cases: 14 per cent first week; 22 per cent the second week; 41 per cent the third week; 53 per cent the fourth week; 61 per cent the fifth week. One plus to 4 plus positive may be expected in the following percentage of cases: 90 per cent in the primary stage; 95 per cent in the secondary stage; 87 per cent in the tertiary stage, and 70 per cent in the latent stage.

Several factors influence the Wassermann reaction. Frambesia (Yaws) gives a positive reaction. Contamination of the serum with certain bacteria (especially the staphylococci and streptococci) may cause erroneous positives. Uncontaminated normal bloods give 100 per cent negative reactions. If the Wassermann is positive and the history is negative we believe that a second specimen of blood should be examined. In chronic syphilitic diseases of the nervous system, general paresis and tabes dorsalis, the positive reactions vary. In general paresis some have found as high as 100 per cent positive. In tabes dorsalis the positives occur in from 50 to 75 per cent. When the patients are being treated the findings depend upon the time, care and accuracy of the work being done.

Occasionally we have, what is called Wassermann fast blood. That is, the blood remains positive in spite of prolonged intensive treatment. Whether or not these reactions are due to treponema remaining in the tissues has caused many controversies, but it is our opinion the patient still has syphilis and should be treated as such.

All syphilitic cases should have an examination of the spinal fluid. This examination should consist of a cell count, globulin test, Lange's colloidal gold test and a complement fixation test. Such tests are especially indicated in cases showing manifestations of mental and nervous pathology. A positive complement fixation of

the spinal fluid may be expected in 30 per cent or more of all cases in the secondary stage and from 15 to 20 percent of those in the tertiary and latent stages.

The various globulin tests (Ross-Jones, Nonni-Apelt, Noguchi, and Pandey) are generally negative in the early stages of syphilis, but the globulin content is increased in a majority of the cases of syphilitic diseases of the nervous system.

The Colloidal gold test was first recommended by Lange in 1913, as a method of distinguishing between certain syphilitic and non-syphilitic diseases of the nervous system.

The luetin test has not proved to be a general success, though some workers have given it their approval.

In conclusion: (1) It is our opinion that the diagnosis of syphilis should not be based upon either clinical or laboratory findings alone. (2) Many doubtful cases can be cleared up by close cooperation between the diagnostician and the laboratory. (3) Histories and physical examinations should be made to determine the proper test to order.

GIANT APPENDIX WEIGHING ONE POUND SIX OUNCES

The appendix in the case reported by E. Dunbar Newell, Earl R. Campbell and J. Marsh Frere, Chattanooga, Tenn. (Journal A. M. A., June 15, 1929), an enormous bent pear-shaped cystic mass, measured 7 by 8 by 16 cm. and weighed 659 gm. The lumen at the site of removal from the intestine was 3 cm. in diameter. No acute inflammation was seen and the lumen was open from end to end, neither stricture nor stenosis being present. Microscopic examination revealed a thick dense wall composed entirely of fibrous tissue. No lining membrane was found, and only a flat, scant, serous coat was present. A diagnosis of mucoid cyst of the appendix was made.

BOTULISM FROM INGESTION OF RIPE FRUIT

Death occurred from botulism in a case reported by Willard J. Stone, Pasadena, Calif. (Journal A. M. A., June 15, 1929), in which the symptoms of poisoning developed about half an hour after the ingestion of a ripe persimmon. The early symptoms were nausea and difficulty in swallowing followed within a few hours by diplopia due to extra-ocular muscle paralysis, rapid heart rate due to paralysis of the vagi, and eventually respiratory paralysis. Necropsy revealed as the most important observations acute parenchymatous changes involving the brain, heart, liver, spleen and kidneys, with marked acute fatty degeneration of the heart muscle and liver.

THE JOURNAL

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No. 5

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

WELCOME TO SHAWNEE

No one likes to go to a funeral, neither does one care to visit a dead city, and when you come to Shawnee, don't come in mourning, but come prepared to meet a bunch of active, energetic people who are prepared to show you a good town and a good time.

Although Shawnee is a comparatively young city, it has kept pace with the times and has many places of interest for the visitor. Located in Woodland Park, three blocks from Main street is the original cabin of H. G. Beard, the founder of

Shawnee. This cabin stands as a monument to the foresight of a man whose spirit is still manifested in the business men of Shawnee, they are not building just for today, but for years to come, by making every effort to care for the visitor and make him feel comfortable. This is shown by development of recreational and hotel facilities, and the courtesy extended to the visitors in order that he may enjoy the use of the Country Club, the Elks Club, and Meadow Lark Golf Link by obtaining golf courtesy cards from any of the principal hotels, which entitles him to the use of the golf link without payment of fees.

Shawnee's hotels offer ample accommodation for the visitor, with modern equipment and reasonable rates. The completion of the new Aldridge hotel has made it possible to care for the larger conventions.

Our local doctors, in conjunction with the Chamber of Commerce, are making elaborate plans for your entertainment and comfort while you are here, and we will be keenly disappointed if you do not come and we feel that you will be missing a real treat.

Oklahoma is the heart of the great Southwest, Shawnee is the heart of Oklahoma, so come to Shawnee the heart of the Great Southwest, and be welcomed by a host of friendly, homogeneous people.

—Contributed.

TO THOSE WHO SERVE

At the meeting of the Dallas Southern Clinical Society, Dr. Vilray P. Blair, St. Louis, succinctly stated the proud position of the medical profession with reference to all cults. No doubt the conclusions voiced by Doctor Blair have occurred oft times to observing and irritated physicians who note the absurd movements of members of various cults and their varied attempts to fill the guise of competent physicians and surgeons. Dr. Blair concludes that every movement, institution, organization or corporation relies upon the "Regular" and never upon the cultist to care for their charges. Upon reflection, one does recall that during the World War no nation saw fit to employ in any branch of medical or surgical service for their armies or navies or for their allied forces, Christian Science, Osteo-

paths, Chiropractors, Faith Healers or any such similar "experts", who now stand forth offering their services to a deluded, gullible public.

The greatest and most ambitious expedition to the pole is just now being completed by Commander Byrd. The lives and health of the scores of men in this expedition were entrusted to high class and most competent physicians and surgeons. Nowhere does the cultist show as being necessary nor was he missed.

When it is recalled that the Army, Navy, Public Health Service, Veteran's Bureau, Indian Service, Interior Department, Agricultural Department, railroads, steamship lines, oil companies, manufacturers and all others holding the destinies of men under their care, employ physicians and surgeons only, it is no wonder that those physicians feel a proper pride in their position and justly feel entitled to class themselves among "Those who serve."

PREVENTION OF MALPRACTICE CLAIMS

The radiologist is in position to observe the beginning and ends of claims of malpractice. It is worth while to note some of the high points in a recent editorial* upon the prevention of malpractice claims. *Radiology* observes that one of the companies carrying a great deal of indemnity insurance has issued a series of suggestions, which, if followed by the general profession would aid in forestalling malpractice claims and suits. One of these is, "Make no admissions of liability on your part. Let your responsibility be determined by legal standards." It is a dangerous thing to discuss your case with anyone except your attorney. In one case a physician remarked that, "The radium was on too long, and it was his fault that the patient was burned." As a matter of fact, he did not apply the radium but only ordered it. The question of his legal liability for the acts of his assistant was undetermined. However, his statement that it was his "fault" was synonymous with "negligence" and cost him a judgment which was upheld by the State Supreme Court.

A physician treating a fractured tibia, discovered several days later a fractured fibula, and stated in substance that if he

had discovered and treated the fractured fibula in the first instance, the recovery would have been complete.

Later the court in the case said: "These declarations, if made, were made by an expert assuming to treat plaintiff with ordinary skill and care and tended to prove want of ordinary skill and care in such treatments. This was competent evidence for the purpose offered, and made such a case as entitled plaintiff to go to the jury." Many such cases occur.

"Refrain from making remarks about any other doctor's work. Without doubt this is a common source of instigating malpractice litigation, and most such remarks are thoughtlessly made."

It is no longer a novelty for companies engaged in malpractice defense to have their doctors receive letters containing statements such as the following: "We have had him to two other doctors since. One doctor said we had a very good case for suit. The other said we were very unfortunate to have a job done like that. Both doctors will testify in court if they have to."

As a matter of fact, everyone knows that it is growing more difficult to get even the most unethical physician to go on the stand and testify against another physician. They usually find themselves in a very sad plight if they do so.

In one Oklahoma case it was impossible to get any physician to testify so the plaintiff called in a veterinary. The physician won the suit so rapidly that it seemed to almost bounce back from the jury.

Accurate records are absolutely necessary, not only for protection of the physician in the future but they are of necessity a part of the proper practice of medicine and surgery today. Very few physicians know or realize or if they do know they forget that a minor, treated years ago, may bob up at any time within two years after he has reached his majority and file an utterly groundless suit. If the physician keeps accurate records he is always fore armed and ready to meet such contingencies. *Radiology* believes that men "too busy to keep records deserve no protection in malpractice claims and in time will receive none."

In fractures, the importance of X-ray,

first, last and all the time cannot be too strongly urged. It has more than once occurred to the writer that in those cases where the patient is unable to pay for such services he should be called upon to assume, at least some of the responsibility, but that responsibility should be assumed in writing and held by the physician for his protection. The surgeon should set forth the necessity for such work and if it cannot be had by reason of the patient's fault a witnessed record should then and there be made of that fracture.

*Radiology, Volume XIV, Number 5, May, 1930.

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Editorial Notes—Personal and General

DR. R. Q. ATCHLEY, Tulsa, sails June 6th for London and Berlin where he will take a post graduate course in surgery, returning about September 1, 1930.

DR. and MRS. H. C. ANTLE, Chickasha, left April 21, for New Orleans, where Dr. Antle will attend a post-graduate course in skin diseases and electro-therapy at Tulane University.

COMANCHE COUNTY MEDICAL SOCIETY met at Lawton, April 8th, for their regular meeting. A paper on "Digitalis" was presented by Dr. G. S. Barber, Lawton, followed by discussions.

DR. FRED H. ALBEE, New York, who will be a guest at the Annual Meeting at Shawnee, will hold a clinic at the Morningside Hospital, Tulsa, beginning at 9:30 A. M., Monday, May 26, 1930.

NOBLE COUNTY MEDICAL SOCIETY elected the following officers at a recent meeting: President, Dr. D. F. Coldiron, Perry; secretary, Dr. J. W. Francis, Perry; delegate to the State Medical Convention, Dr. B. A. Owen, Perry.

STEPHENS COUNTY MEDICAL SOCIETY were guests of Drs. L. L. Patterson and W. S. Ivy at their regular monthly meeting held March 25th, Duncan, at the First Christian church. The meeting was well attended, including a number of doctors from Oklahoma City.

GARVIN COUNTY MEDICAL SOCIETY met April 14th, at Dr. W. P. Greening's office for their regular meeting. The regular program was furnished by the dental profession of Garvin County. Dr. C. P. Bondurant, Oklahoma City, gave an address on "Common Diseases of the Skin."

OKMULGEE-OKFUSKEE COUNTIES held their regular joint meeting at the Parkinson Hotel, Okmulgee, on Monday evening, April 21, 1930. Dr. F. P. Baker, Medical Superintendent of The Eastern Oklahoma State Sanatorium, Tahleah, gave a very interesting talk, "Tuberculosis in Childhood."

CADDO COUNTY MEDICAL SOCIETY met at Hinton, Okla., for their April meeting. Interesting papers were read by Drs. McClure and Leeds, both of Chickasha. Luncheon was served the physicians by the ladies of the Christian church, where the meeting was held. There were many out-of-town guests.

LINCOLN COUNTY MEDICAL SOCIETY had their regular monthly meeting at Prague, April 2. The main feature of the meeting was a lecture by Dr. Ray M. Balyeat, Oklahoma City, on "Asthma, Hay Fever and Other Diseases Due to Allergy." Drs. J. Elmer Hughes and Wm. M. Galaher, Shawnee, were guests at the meeting.

DRS. D. W. GRIFFIN, L. A. TURLEY, and GAYFREE ELLISON, Norman, were hosts April 7th, when they entertained about twenty-five members of the Oklahoma City Academy of Medicine and eighteen members of the Cleveland County Medical Society with a dinner at the Academy. Dr. Charles Brake and Dr. C. R. Rayburn gave an illustrated lecture on "Organic Conditions of the Brain." Dr. Dick Lowry spoke on "Obstetrics."

MUSKOGEE COUNTY MEDICAL SOCIETY held their regular meeting Monday, April 27th. Oklahoma physicians furnished the program. Dr. A. L. Blesh addressed the society on "Surgical Mortality and Morbidity"; Dr. J. Z. Mraz, on "The Diseases of the Upper Urinary Tract"; and Dr. W. W. Rucks on "Peri-Nephritic Infections." The meeting was well attended and the speakers held the close attention of all physicians. The addresses and papers were very much to the point and unusually profitable.

DRS. T. J. LYNCH and J. O. LOWE, formerly of the Okmulgee Clinic, have removed to Tulsa, and have their offices in the Philcade Building. The remaining members of the clinic have consolidated with the Ming-Vernon-Stark Clinic to form the Okmulgee Clinic at 220 So. Morton. The members are: W. C. Mitchener, C. M. Ming, W. C. Vernon, W. W. Stark, L. B. Windham. Dr. G. C. Moore, formerly with the Ming-Vernon-Stark Clinic, has announced his removal to Ponca City, where he will limit his practice to Ear, Eye, Nose and Throat.

GARFIELD COUNTY MEDICAL SOCIETY held its fifth annual guest day meeting at the Youngblood hotel, April 28. About 100 physicians from northwest Oklahoma, including Oklahoma City, Guthrie and El Reno attended. The program follows: "A Country Doctor Takes A Look at Female Complaints," Dr. Arthur E. Hertzler, Halstead, Kansas; "Simplicity in Infant Feeding," Dr. Hugh L. Dwyer, Kansas City, Mo; "The Female Urethra. A Much Overlooked Field," Dr. A. L. Folsome, Dallas, Texas; "A Discussion of the Physiology and Pharmacology of the Vegetative Nervous System," Dr. G. Wilse Robinson, Kansas City, Mo; "Compression Therapy, with Special Reference to Cauterization of Adhesion (Tuberculosis)," Dr. LeRoy S. Peters, Albuquerque, N. Mexico.

GRADY COUNTY MEDICAL SOCIETY met April 4th, for their regular meeting and luncheon at the Legion Hall, Chickasha. Dr. Charles Rayburn, Norman, spoke on "Head Injuries" his

address being illustrated by lantern slides. Dr. U. C. Boon, Chickasha, presented a paper on "Sinusitis" in which he discussed nasal troubles with climatic conditions being one of the causes. The honor guest of the meeting was Dr. Calvin R. Hanna, professor of Obstetrics in Baylor University, Dallas. He discussed "Post Partum Care," illustrating his lecture with lantern slides.

The following physicians registered at the Dallas Southern Clinical Society, April 14th: Drs. E. A. Aisenstadt, Picher; J. W. Baze, Chickasha; G. F. Border, Mangum; P. B. Champlin, Enid; H. D. Collins, Oklahoma City; O. J. Colwick, Durant; D. S. Downey, Chickasha; L. E. Emanuel, Chickasha; Roy Fisher, Frederick; W. E. Floyd; Holdenville; F. L. Flack, Tulsa; Onis Franklin, Broken Arrow; W. A. Fuqua, Grandfield; R. B. Gibson, Ponca City; C. H. Guild, Shidler; J. M. Harris, Wilburton; C. T. Harris, Kiowa; C. M. Harrison, Comanche; J. I. Hollingsworth, Waurika; J. L. Holland, Madill; W. S. Ivy, Duncan; O. R. Jeter, Mangum; E. A. Johnson, Hugo; W. N. John, Hugo; W. W. Kerley, Anadarko; O. A. Kirby, Marietta; N. H. Lindsey, Pauls Valley; W. T. Mayfield, Norman; Jessie S. Little, Minco; H. C. Floyd, Hobart; M. L. Lewis, Ada; S. O. Marrs, Chickasha; Elias Margo, Oklahoma City; H. M. McClure, Chickasha; J. E. McDonald, Tulsa; M. C. McNew, Ada; E. B. Mitchell, Lawton; A. W. Nunnery, Chickasha; C. E. Northcutt, Ponca City; C. D. F. O'Hern, Tulsa; G. Pinnell, Miami; C. C. Pruitt, Comanche; E. W. Reynolds, Bristow; R. L. Russell, Marlow; J. C. Rumley, Stigler; W. G. Ramsey, Quinton; W. E. Seba, Leedey; L. P. Smith, Elmore City; W. W. Stark, Okmulgee; A. B. Stephens, Seminole; R. C. Sullivan, Ardmore; C. A. Thompson, Muskogee; W. A. Tolleson, Eufaula; L. C. Vance, Ponca City; W. J. Wallace, Oklahoma City; J. H. White, Muskogee; R. B. Witcher, Tulsa; Reed Wolfe, Hugo; W. S. Works, Bennington; W. K. West, Oklahoma City.

DOCTOR S. HALL KIMMONS

Dr. S. H. Kimmons, pioneer Tulsa physician, died at a Tulsa hospital, March 25th, of heart disease. Dr. Kimmons, who was sixty-two years old, had been ill several weeks.

Dr. Kimmons was born in Oxford, Kansas, in 1868. His early schooling was obtained in the country schools of this place, after which he entered the University of Mississippi where he received his A. B. and M. A. degrees. He came to Tulsa in 1900, where he began the practice of medicine.

He is survived by his wife, a brother and two nieces.

Burial was made at Memorial Park.

A MESSAGE TO PHYSICIANS

In The Journal of the American Medical Association for October 12, 1929, it was announced that the Council on Pharmacy and Chemistry had established a Committee on Foods to examine food products and literature regarding their composition and the claims made in relation to their application and usefulness—all subject to a series of rules under which the Committee on Foods proposes to operate.

The purpose of the above statement is first, to acquaint the reader with the above movement in the interest of public health, and second, to advise that Mellin's Food and literature concerned have been considered and that Mellin's Food is accepted by the Committee on Foods and that the Mellin's Food Company is entitled to make use of the fact in advertising material and is permitted to use the "seal" of the committee. Your attention is requested to this insignia which is reproduced in the Mellin's Food Company's advertisement in this issue.

For a great many years accurate analysis of Mellin's Food and of Mellin's Food as prepared for the feeding of infants and as applied in the management of the diet in illnesses of children and adults have appeared regularly in this publication and in literature placed in the hands of physicians generally.

Notwithstanding the fact that this consistent work with the medical profession had long ago resulted in establishing Mellin's Food as a product of superior quality, it must be gratifying to the Mellin's Food Company to have it all confirmed by a committee acting upon the authority of the American Medical Association.

DOCTOR, WHO ARE YOUR "COMMERCIAL" FRIENDS?

Now when the physician is beset on all sides to try products "just as good as Mead's", it is well for the physician to consider that in a commercial age when the practitioner must compete with newspaper, magazine, radio, tradesman and without a license, here is one manufacturer who patent food manufacturers who practice medicine unceasingly works for the medical doctor's economic as well as professional interests. Hold fast to that which is good—the Mead Policy which makes Mead Johnson & Company more than a commercial house—a powerful ally that practices as well as preaches ethics.

INFECTION WITH ORGANISMS OF VINCENT'S ANGINA FOLLOWING HUMAN BITE

The infection is usually limited to the mucous membranes. In the case reported by C. Rex Fuller and John C. Cottrell, Salida, Colo. (Journal A. M. A., June 15, 1929), the infection occurred in the finger following a bite by a person suffering from ulcerative stomatitis due to Vincent's angina.

PROGRAM

THIRTY-EIGHTH ANNUAL SESSION, OKLAHOMA STATE MEDICAL ASSOCIATION, SHAWNEE, MAY 26-27-28, 1930

Meeting Places — Shawnee High School Building, Telephone 326.

Hotel Headquarters—Hotel Aldridge, Telephone 3300.

Registration — All physicians, except those from outside the State and visiting guests, must hold membership certificate for 1930 before they may register. If you are not in good standing see your county secretary at once and arrange the matter before coming to Shawnee, if possible.

Delegates—The Credentials Committee of the House of Delegates will register delegates at the Aldridge Hotel during the afternoon of Monday, May 26th. Delegates should present their credentials prior to the meeting if possible in order not to delay the formation of the House.

Papers—Are the sole property of the Association and are not to be taken from the meeting place but should be deposited in the office of the State Secretary or with the Section officers. These should be prepared in triplicate; a copy sent to the person who will discuss it, and one reserved for the author. Before final publication of any paper, proof will be submitted to the author for his correction. Papers should be double spaced with wide margins, and should contain: Title, name of author, his address and his office or street number. Observance of the above will save a great deal of correspondence in the future.

House of Delegates — The House of Delegates will meet at 8:00 P. M., Shawnee High School Building, May 26, for the transaction of such business as is necessary. The House of Delegates will also meet at 8:00 A. M., Tuesday, May 27, for the election of officers. It will meet thereafter upon its own decision, should its affairs necessitate. Matters of finance and those pertaining to the business affairs of the Journal and Association should be presented to the Council and not to the House of Delegates.

Council — Will meet at the Hotel Al-

dridge, Monday, May 26, 3:00 P. M., and thereafter upon the call of the President. It is the function of the Council to originate all business affairs of the Association and they must be presented to that body for action before they may be acted upon by the House of Delegates.

Hotel Rates—The following are the names of hotels and rates. The rate given is for one person in room. For each additional person in room approximately fifty cents increase is the charge.

| | |
|-------------------------|--------|
| Aldridge Hotel | \$4.00 |
| Walcott Hotel | 2.50 |
| Norwood Hotel | 2.00 |
| Los Angeles Hotel | 1.50 |
| Baker Hotel | 2.00 |
| Travelers Hotel | 2.00 |
| Dixie Hotel | 2.50 |
| Majestic Hotel | 1.00 |

In addition to the hotel rooms a number of rooms in private homes may be had for which the rate will be \$2.00 per night.

SECTIONS AND MEETING PLACES

Exhibits—All exhibits and registration will be on the main floor of the High School building and all sections will be held on the same floor.

General Medicine—Will meet in Room B-3.

Surgery—Will meet in the Auditorium.

Eye, Ear, Nose and Throat—Will meet in Room B-13-14.

Morning Sessions

Will be held Tuesday, May 27, and Wednesday, May 28, beginning at 8:00 A. M., with the following schedule:

- 8:00 Orthopedic Clinics: "*Simple Fractures of the Upper Extremity*" by DRS. W. K. WEST, C. R. ROUNTREE and H. O'DONOGHUE, Oklahoma City.
- 9:30 Moving Pictures—"Technique of Blood Transfusion", 30 minutes; "Normal Heart," 15 minutes; "Rabies", 15 minutes;

10:30 Joint Scientific Meetings:

1. Address, DR. AUSTIN A. HAYDEN, Executive attending Oto-Laryngologist, St. Joseph's Hospital; Treasurer of the American Medical Association, Chicago.
2. *"The Significance of Certain Physiologic Facts in the Surgery of the Abdomen"*, DR. JABEZ JACKSON, Kansas City, Mo.
3. *"Spinal Cord Tumors"*, DR. FRANK R. TEACHENOR, Kansas City, Mo.

WEDNESDAY, MAY 28, 1930

(Morning)

- 8:00 Orthopedic Clinics: *"Simple Fractures of the Lower Extremity"* by DRS. W. K. WEST, C. R. ROUNTREE, and D. H. O'DONOGHUE, Oklahoma City.
- 9:30 Moving Pictures—*"Acute Appendicitis,"* (Professional), 30 minutes; *"Treatment of a Normal Breech Presentation,"* 30 minutes.
- 10:30 Joint Scientific Meetings:
1. *"Recent Advances in Bone Surgery,"* illustrated with slides and moving pictures, DR. FRED H. ALBEE, New York City.
 2. *"The Use of Sodium-iso-amyl-ethyl-barbiturates as a Surgical Anesthesia,"* DR. W. E. SIS-TRUNK, Dallas Texas.

HOUSE OF DELEGATES

Will meet Tuesday, May 27, 8:00 A. M.

All Scientific Sections will begin at 1:30 P. M., Tuesday and Wednesday, May 27 and 28. Chairmen and secretaries and their assistants will urge those interested in attendance on their meetings to be prompt in order to complete the programs as scheduled.

LADIES' AUXILIARY

TUESDAY, MAY 27, 1930

- 10:00 A. M. Business Meeting, Hotel Aldridge. 3: to 5:00 P. M.—Tea, Shawnee Country Club.

WEDNESDAY, MAY 28, 1930

- 10:30 A. M. Visit to St. Gregory's Art Gallery. Wednesday P. M.—Theater, at Bison.
- Wednesday evening—Picnic at Shawnee Country Club.

DINNERS

Thursday evening, 6:00 to 8:00 P. M.—Reserve Officers, Medical Fraternity, Women Physicians, Indian Service and Public Health, Aldridge Hotel.

GOLF

MONDAY, MAY 26, 1930

Golf will be played at the Shawnee Country Club, the Elk's Club, and Meadow Lark Club. The tournament will be at the Shawnee Country Club.

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PROGRAM, GENERAL MEETING

Auditorium, Shawnee High School Building

MAY 27, 8:15 P. M.

DR. R. M. ANDERSON, Shawnee, *General Chairman*, Presiding

Invocation — DR. R. M. C. HILL, McCloud, Okla.

Music

Address of Welcome—DR. J. A. WALKER, Shawnee.

Response to Address of Welcome—DR. A. S. RISSER, Blackwell.

*Music.**Introduction of Guests*—

1. DR. JABEZ N. JACKSON, Ex-President of the American Medical Association, Kansas City, Mo.
2. DR. AUSTIN A. HAYDEN, Executive attending Oto-Laryngologist, St. Joseph's Hospital, Treasurer, American Medical Association, Chicago.
3. DR. C. M. SISTRUNK, Dallas, Texas.
4. DR. FRANK R. TEACHENOR, Kansas City, Mo.
5. DR. FRED H. ALBEE, New York.

Introduction of President-Elect FERGUSON, Oklahoma City.

DR. W. ALBERT COOK, Tulsa.

President's Address—DR. E. S. FERGUSON, Oklahoma City.

Address—DR. C. M. ROSSER, Dallas, Texas.

Oklahoma Pediatric Society will meet Monday, May 26, in room B-13-14, High School building. Information relative to this meeting may be obtained from DR. CLARK H. HALL, Medical Arts Building, Oklahoma City.

WEDNESDAY, MAY 28, 6:00 P. M.

Picnic dinner for physicians and their wives at Shawnee Country Club.

ORATIONS

8:00 P. M.

DR. WM. PAT FITE, Muskogee—"Present Day Trend of Surgical Anesthesia."

DR. D. D. MCHENRY, Oklahoma City—"Some Don'ts in Eye, Ear, Nose and Throat Work."

DR. D. W. GRIFFIN, Norman—"Psychiatry in Medicine."

9:00 P. M.

President's Reception and Dance.

EYE, EAR, NOSE AND THROAT

T. G. WAILS, *President*, Medical Arts Building, Oklahoma City.

RURIC N. SMITH, *Secretary*, Medical Arts Building, Tulsa.

TUESDAY, 1:30 P. M.

1. President's Address: THEODORE G. WAILS, Oklahoma City — "*The Eye and Ear in Brain Pathology*."

2. "*Foreign Bodies in the Eye Ball*"—W. ALBERT COOK, Tulsa.
Discussion opened by D. D. MCHENRY.

3. "*Streptococcic Septicemia with Throat and Middle Ear as Infection Atrium*" — ALONZO C. MCFARLING, Shawnee.

Discussion opened by M. K. THOMPSON, Muskogee.

4. "*The Bronchoscopic Treatment of Non-Tuberculous Lesions of the Lungs*", Illustrated by slides and moving pictures—SAM E. ROBERTS, Kansas City.

Discussion opened by AUSTIN L. GUTHRIE.

5. "*Maxillary Sinus Infections*" — H. COULTER TODD, Oklahoma City.
Discussion opened by SAM E. ROBERTS.

WEDNESDAY, 1:30 P. M.

1. "*Treatment of the Phorias and Tropias*", Illustrated by moving pictures—CHAS. B. BARKER, Guthrie.
Discussion opened by M. K. THOMPSON.

2. "*Hearing—Examination and Conservation*," motion pictures—AUSTIN A. HAYDEN, Chicago.
Discussion opened by E. S. FERGUSON.

3. "*The Effect of High Explosives on the Hearing*"—W. T. SALMON, Duncan.

Discussion opened by LESLIE M. WESTFALL.

4. "*Detachment of the Retina*"—LOUIS C. KUYRKENDALL, McAlester.

Discussion opened by CHAS. H. HARALSON.

5. "*Report of an Eye Case*", Drawings—CHARLES M. FULLENWIDER, Muskogee.

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GENERAL SURGERY, GYNECOLOGY OBSTETRICS AND UROLOGY

A. RAY WILEY, *Chairman*, Medical Arts Building, Tulsa.

WM. C. VERNON, *Chairman*, Okmulgee.

TUESDAY, MAY 27, 1930, 1:30 P. M.

1. Chairman's Address: "*Non Penetrating Abdominal Injuries*"—A. RAY WILEY, Tulsa.

2. "*Is Gastroenteroptosis a Surgical Condition?*"—F. A. HUDSON, Enid.

3. "*Juvenile Deforming Osteochondritis*" — S. R. CUNNINGHAM, Oklahoma City.

Discussion opened by WADE SISLER, Tulsa.

4. "*Fractures of the Neck of the Femur*"—EARL D. MCBRIDE, Oklahoma City.

Discussion opened by L. S. WILLOUR, McAlester.

5. "*Compression Fractures of the Vertebrae*"—I. W. BOLLINGER, Henryetta.

Discussion opened by E. A. AISENSTADT, Picher.

"*Low Back Pain*"—E. MARGO, Oklahoma City.

Discussion opened by W. K. WEST, Oklahoma City.

7. "*Some of the Newer Methods of Plastic Surgery*"—CURT VON WEDEL, Oklahoma City.

Discussion opened by FRED CRONK, Tulsa.

8. "*Obstetrical Observations*" — M. B. GLISMAN, Okmulgee.

Discussion opened by GEORGE P. OSBORN, Tulsa.

9. "*The Injection Treatment of Varicose Veins*"—R. Q. ATCHLEY, Tulsa.

Discussion opened by L. J. STARRY, Oklahoma City.

10. "*Urologic Diagnosis for the General Surgeon*"—BASIL A. HAYES, Oklahoma City.

Discussion opened by O. R. GREGG, Enid.

11. "*Vascular Accidents in Surgery*"—T. J. LYNCH, Tulsa.
Discussion opened by I. B. OLDHAM, JR., Muskogee.
12. "*Vesico-Vaginal Fistulas*" — J. Z. MRAZ, Oklahoma City.
Discussion opened by A. W. PIGFORD, Tulsa.
13. "*Some Remarks on Anaesthesia*"—J. E. HUGHES, Shawnee.
Discussion opened by H. B. STEWART, Tulsa.

WEDNESDAY, MAY 28, 1930, 1:30 P. M.

1. "*The Diagnosis and Cure of Trigeminal Neuralgia Major*" — WM. T. COUGLIN, St. Louis, Mo.
2. "*Thoracic Surgery*" — DUFF ALLEN, St. Louis, Mo.
3. "*Localization of Spinal Cord Tumors*"—N. R. SMITH, Tulsa.
Discussion opened by HORACE REED, Oklahoma City.
4. "*Spinal Anaesthesia*"—E. R. RICE, St. Louis, Mo.
5. "*Mobile Ascending Colon*"—FRANK J. STANISLAV, Waco, Texas.
6. "*Toxic Goiters*"—LEROY LONG, Oklahoma City.
Discussion opened by W. PAT FITE, Muskogee.
7. "*The Heart in Surgery*" — W. J. TRAINOR, Tulsa.
Discussion opened by JOHN RILEY, Oklahoma City.
8. "*Structures of the Rectum*" — C. K. ALLEN, Oklahoma City.
Discussion opened by R. L. MURDOCK, Oklahoma City.
9. "*Perforating Duodenal Ulcers*"—OSCAR WHITE, Oklahoma City.
Discussion opened by J. B. ESKRIDGE, Oklahoma City.
10. "*Pyelonephritis in Women*"—FENTON M. SANGER, Oklahoma City.
Discussion opened by H. S. BROWNE, Tulsa.
11. "*Spinal Anaesthesia*"—W. H. LIVERMORE, Chickasha.
Discussion opened by A. L. BLESCH, Oklahoma City.
12. "*Hyper-Ventilation in Post-Operative Pneumonia*"—PATRICK S. NAGLE, Oklahoma City.
13. "*New Surgical Procedure in Osteomyelitis*" DR. WADE SISLER, Tulsa.

GENERAL MEDICINE

ANTONIO D. YOUNG, *Chairman*, Medical Arts Building, Oklahoma City.

BEN COOLEY, *Secretary*, Norman.

TUESDAY, MAY 27, 1:30 P. M.

1. Chairman's Address: "*Head Injuries*"—A. D. YOUNG, Oklahoma City.
2. "*The Role of Respiratory Infections in Disturbances of the Heart*"—RUSSELL G. PIGFORD, Tulsa.
3. "*Amebiasis*"—A. W. WHITE, Oklahoma City.
4. "*Urticaria — Diagnosis and Treatment*"—R. M. BALYEAT, Oklahoma City.
5. "*Chemical Analysis of the Blood and Functional Tests As an Aid in Diagnosis*"—V. G. ISVEKOW, Shawnee.
Discussion opened by I. A. NELSON, Tulsa.
6. "*Saur Kraut Juice for the Acidification of Evaporated Milk in Infant Feeding Formulac*"—C. V. RICE, Muskogee.
7. "*Progressive Muscular Dystrophy*"—W. S. MASON, Claremore.
8. "*Syphilis and Its Relation to General Medicine*"—C. P. BONDURANT, Oklahoma City.
9. "*Report of Experiments as to the Effects of Some Drugs on the Blood Picture*"—L. A. TURLEY, Norman.
10. "*Pathology, From a Public Health Point of View*"—WALTER MILES, Oklahoma City.

WEDNESDAY, MAY 28, 1:30 P. M.

1. *Symposium—Syphilis in Infancy and Childhood*
 - (a) "*Symptoms and Diagnosis in the New-Born and Infancy*"—CLARK H. HALL, Oklahoma City.
 - (b) "*Symptoms and Diagnosis in Older Children*"—W. M. TAYLOR, Oklahoma City.
 - (c) "*X-Ray Findings*"—J. E. HEATLEY, Oklahoma City.
 - (d) "*Orthopedic Conditions*" — W. K. WEST, Oklahoma City.
 - (e) "*Dental Conditions*" — MERWIN C. HOWARD, Oklahoma City.
 - (f) "*Treatment*"—C. B. TAYLOR, Oklahoma City.
 - (g) "*Post-Volstead Alcoholic Psychosis*"—C. A. BRAKE, Norman.

- (h) "*The Etiology and Pathogenesis of Acute Diffuse Glomerular Nephritis*"—E. RANKIN DENNY.
- (i) "*Jamaica Ginger Peripheral Neuritis*"—E. GOLDFAIN and HUGH JETER, Oklahoma City.
- (j) "*Maternal Mortality Survey of the State of Oklahoma*"—M. C. SHERIN, State Department of Health, Oklahoma.

ANNUAL REPORT

OF THE SECRETARY-TREASURER-EDITOR
MAY 1, 1929, TO APRIL 30, 1930:

To Members of the Oklahoma State Medical Association:

Conforming with the Constitution and By-Laws, I hereby submit a condensed statement of our work for the time above indicated.

All books and papers pertaining to our business have been submitted to the Council for their action. All financial transactions have been certified to by the officers of the Commercial National Bank, Muskogee.

Membership: On April, 1929, we had 1584 members; on this report we have 1609.

Deaths in Our Membership: Since last year's report we have had to report the deaths of the following members, or former members:

Dr. A. J. Stephenson, Okemah.
Dr. Edgar E. Rice, Shawnee.
Dr. R. E. Looney, Nashville, Tenn.
Dr. E. R. Askew, Hugo.
Dr. Wm. J. Bamber, Arnett.
Dr. J. I. Taylor, Ringling.
Dr. John R. Collins, Nowata.
Dr. R. A. Lively, Durant.
Dr. J. J. Hardy, Poteau.
Dr. S. T. Campbell, Durant.
Dr. C. T. Hendershot, Tulsa.
Dr. S. H. Kimmons, Tulsa.
Dr. W. G. Lemmon, Tulsa.
Dr. W. B. Mead, Lawton.
Dr. N. R. Nowlin, Oklahoma City.
Dr. C. Z. Wiley, Tulsa.
Dr. J. H. Hayes, Enid.
Dr. J. J. Hoover, Oklahoma City.

Medical Defense: The following cases have been settled:

Canadian County, No. 8492.

Tulsa County, No.
Logan County, No. 6327.
Garvin County, No. 9052.
Oklahoma County, No. 55,773.
The following cases are pending:
Pontoc County, No. 10278.
Pontotoc County, No.

In addition to these, there are nine cases in which the status is as yet unknown or pending:

Ottawa County, No.
Seminole County, No.
Grady County, No.
Tulsa County, No.
Custer County, No.
Bryan County, No.
Custer County, No.
Seminole County, No.
Garvin County, No.

Journal and Advertising: Our business affairs during the past year have been in a very satisfactory condition. For the year ending April, 30, 1929, we received \$6558.11 for advertising and subscriptions; for the period ending April, 1930, we received \$7619.95, a gain of \$1061.84; while at the same time our Journal was 66 pages larger than the previous year.

We must again say that we received splendid support from our advertisers and all things being equal it is our duty to support them.

The Journal: It has been rather difficult to get and maintain a uniform sized Journal but in this respect we believe there has been some improvement during the year.

Finances: Herewith is condensed statement of the financial transactions since our last report:

FINANCIAL STATEMENT

The Oklahoma State Medical Association
May 1, 1930

Receipts

| | |
|---|--------------------|
| May 1, 1929, Balance Cash on hand in bank | \$ 4,595.70 |
| Advertising and Subscriptions | 7,619.95 |
| County Secretaries | 6,598.50 |
| Exhibits | 392.00 |
| Interest on Time Deposits | 258.75 |
| Total Receipts..... | \$19,464.90 |

Expenditures

| | |
|--|-------------|
| Printing Journal | \$ 5,681.00 |
| Miscellaneous Printing and Office Supplies | 664.83 |
| Office Rent | 482.82 |
| Telephone and Telegraph | 80.21 |

| | |
|---|----------|
| Stamps and Postage, Office & Journal | 292.47 |
| Press Clippings | 60.00 |
| Treasurers Bond and Audit of Books | 150.00 |
| Expense, Oklahoma City meeting | 435.40 |
| Refunds | 6.00 |
| Council and Delegates Expense | 1,016.00 |
| Expense Shawnee Meeting | 19.78 |
| Transfer to Liberty Bond | 1,000.00 |
| Accrued Interest and Premium on \$10,- 000.00 Liberty Bonds bought | 247.00 |
| Transfer to Medical Defense Fund | 600.00 |
| Extra Clerical Work | 86.35 |
| Mrs. Oltha Shelton, Salary for year | 1,200.00 |
| Dr. C. A. Thompson, Salary to March 31, 1930 | 2,200.00 |
| Dr. C. A. Thompson, Balance Salary April, 1929 | 149.25 |

| | |
|---|-------------|
| Total Expenditures | \$14,371.11 |
| April 30, 1930, Balance Cash on hand in bank | 5,093.79 |

| | |
|--|-------------|
| May 1, 1930, Balance Cash on hand in The Com- mercial Natl Bank | \$19,464.90 |
| U. S. 4th 4¼ % Liberty Bonds in safe deposit box in Commercial National Bank | \$ 5,093.79 |
| | 7,000.00 |

| | |
|---|-------------|
| Total Cash Assets | \$12,093.79 |
| April 30, 1930, Balance Cash on hand in Bank | \$ 5,093.79 |
| Check No. 3125 outstanding | 40.00 |
| Balance in bank as per their statement | \$ 5,133.79 |

THE MEDICAL DEFENSE FUND

The Oklahoma State Medical Association
May 1, 1930

Receipts

| | |
|--|-----------|
| May 1, 1929, Balance Cash on hand in bank | \$ 222.73 |
| Aug. 16, 1929, Okla. State Medical As- sociation | 200.00 |
| March, 26, 1930, Oklahoma State Med- ical Association | 400.00 |
| April 26, 1930, Interest on Time de- posits | 120.00 |

| | |
|----------------|-----------|
| Total Receipts | \$ 942.73 |
|----------------|-----------|

Expenditures

| | |
|--|-----------|
| Attorneys' Fee and Legal Expense | \$ 650.00 |
| Balance Cash on hand in bank | 292.73 |
| Total Expenditures | \$ 942.73 |
| May 1, 1930, Balance Cash on hand in bank | \$ 292.73 |
| U. S. 4th 4¼ % Liberty Bonds in Safe Deposit Box in The Commercial Na- tional Bank | 3,000.00 |

| | |
|--------------------------------------|-------------|
| Total Cash Assets | \$ 3,292.73 |
| May 1, 1930, Total Cash Assets: | |
| Oklahoma State Medical Assn. | \$12,093.79 |
| Medical Defense Fund | 3,292.73 |
| May 1, 1930, Grand Total Cash Assets | \$15,386.52 |

May 1, 1929, Grand Total Cash Assets 13,818.43

Total Net Gain Cash Assets for
year \$ 1,568.09

Respectfully submitted,

C. A. THOMPSON,
Secretary-Treasurer-Editor.

(Signed) H. A. LEWIS,
Auditor.

Muskogee, Okla., May 9, 1930

Oklahoma State Medical Association,
Dr. C. A. Thompson, Secretary,
Muskogee, Oklahoma.
Gentleman:

According to our records, at the close of busi-
ness April 30, 1930, there was a credit balance
in the Oklahoma State Medical Association ac-
count of \$5,133.79. Also, on the same date credit
balance in the Medical Defense Fund of \$292.73.

We also wish to advise that on April 29, 1930,
we sold the Oklahoma State Medical Association,
through Dr. C. A. Thompson, \$10,000.00 par value,
Fourth 4¼ % Liberty Loan Bonds, 1933-38.

Yours very truly,
L. W. McLEAN,
Vice-President.

COMMITTEE REPORTS

These reports are made in compliance
with provisions of the new Constitution
and By-Laws which call for publication
of such matter in the issue of the Journal
preceding the Annual Session.

REPORT OF COMMITTEE ON TUBERCULOSIS

To the Oklahoma State Medical Association in
Regular Session at Shawnee, Oklahoma, May
26, 27, 28, 1930.

The Committee on Tuberculosis desires to sub-
mit the following report:

The work of the State Public Health Associa-
tion (formerly called The State Tuberculosis As-
sociation) and its local branches has been carried
on under the direction of Dr. Carl Puckett,
Executive Secretary. While much good has been
accomplished, Dr. Puckett's activities are cur-
tailed by limited finances. This means that every
member of the profession should lend his sup-
port to the annual Christmas Seal Sale.

The two state sanatoria now have a capacity
of approximately four hundred beds. Each in-
stitution carries a large waiting list.

The Committee recommends:

1. That the members of the medical profession
give hearty support to the State Public Health
Association, and the local tuberculosis societies.

2. That the family physician should be the
most important factor in any case-finding scheme,
and that he should not only bear in mind the
importance of early diagnosis, in order that pre-

vention and treatment may be more effective, but with the recent progress in the treatment of advanced cases he must be prepared to make a discriminating study of such cases with a view of offering every opportunity to the otherwise hopeless sufferer, and the possible control of a prolific source of infection.

3. That the number of sanatorium beds be increased to meet the recommendations of the National Tuberculosis Association, one bed for each annual death.

4. That general hospitals be encouraged to provide for the reception, diagnosis, and at least, temporary care of tuberculosis cases.

(a) In justice to the sick.

(b) In fairness to the public.

(c) In order that nurses and internes may become familiar with the diagnosis and treatment of the disease.

5. That each county be compelled to cooperate with the State institutions in the care of their cases, and that they provide funds for their maintenance. The committee also recommends that both County and State cooperate in an effort to take care of the open cases in homes where children are exposed to infection, regardless of the question of priority on the waiting list. Removing the source of infection is much more important and more economical than taking care of the children after infection takes place. If new laws are necessary we recommend that these be referred to the Committee on Legislation. Since the capacity of the State institutions is inadequate to take care of the poor we recommend that the legislative committee be urged to secure effective legislation which will provide institutional care, at the taxpayers' expense, for all those who are unable to pay more than \$10.00 per week, and which will require those who are financially able to pay to secure medical care at home or in private institutions.

L. J. MOORMAN,
F. P. BAKER,
ELLIS LAMB.

COMMITTEE ON MEDICAL EDUCATION AND HOSPITALS

The hospital has been called a Clearing House of Medical Science, and such it should be. Besides serving the people of the community in the conservation of health and life, the hospital is supposed to be an institution in which all the reputable physicians can meet on equal terms and share their experiences and their wisdom, thus making for the mutual improvement of the physicians themselves and their services to the people of the community. This is a fine ideal and it seems to be most nearly realized in those localities, cities or towns, where the hospital is a community institution. That is, where the financial and managerial burdens of the hospital are borne more or less directly by the public, and where all reputable, qualified physicians of the community have approximately equal rights and privileges to the facilities of the institution. Included in this category are public hospitals which are supported by taxation as well as those maintained by endowments and public benefactions, and whose direction is in the hands preferably of non-medical boards of administration.

While hitherto, physicians and other public spirited individuals have taken the initiative in providing hospital facilities, their largest availability and usefulness can be secured only by making them public institutions and maintaining them by taxation. The ill health of our citizens, accident, disease, and poverty are a community affair—a common burden on all our citizens, and the institutions and instruments with which to cure these ills should be public property, in the same way as are our city halls and court-houses, fire stations, our public schools, municipal electric lighting and water plants. Only so can the burden of sickness be equalized among all the citizens. Under present conditions the burden is borne: (1) Largely by the physicians who give unlimited gratuitous services; (2) by the unfortunate patients, whose illness is often no fault of their own but of circumstances and environment and untoward conditions for which even society as a whole may be responsible; (3) by the voluntary contributions of philanthropic citizens. The only way to correct abuses is to change the attitude of the public. It is necessary for us who are in a sense especially interested and conversant with these matters to become educated ourselves to the needs and then to become wise missionaries in disseminating knowledge and in educating the public into right lines of policy and action.

Unfortunately, however, we are confronted at the very outset, in multitudes of communities, by an unnecessary multiplicity of hospitals. This condition is taken by the public as proof positive that private hospitals are a money making and profitable business. Consequently, the laity, private individuals and public officials—city and county commissioners, for example—feel that hospital services should be available for less even than the rates of a first rate or even a medium class hotel. If the truth were told, many of our hospitals are laboring under a burden of empty beds and full overhead so that the deficit must be made up from the personal earnings of the surgeon-owners. We have in mind one large private hospital, the shortage of which has run as high as \$60,000 annually.

Unfortunately, also, there is a suspicion that some few hospitals are operated by men whose qualifications are mostly a knowledge of the advertising value of propaganda and the association of ideas in the mind of the public. They are operators rather than surgeons—but this fine and vast difference the dear public is slow to grasp. Further, this multiplicity of unnecessary hospitals and duplication of needless equipment of hospitals often serves to divide the members of the profession in those communities, into antagonistic and warring cliques and factions. Hence, we have a condition which will require far more than mere "hospital standardization" to correct. The question arises: Who pays the bills under such conditions? the answer is: The doctor and the patient. Hence, we are pleading for a wiser arrangement whereby all the members of society may learn to join in bearing the burden and reaping the benefits which are bound to accrue from greater conservation and concentration of facilities and more perfect professional cooperation.

There are other further difficulties militating against the smaller hospital, especially if conducting a training school for nurses. The con-

tinually rising standards for hospitals and nurses is placing additional tremendous burdens on those who are trying to maintain such institutions. Consider the list of salaried employees which are considered necessary in a modern hospital and training school—superintendent, assistant superintendent or superintendent of nurses, surgical supervisor, dietitian, laboratory technician, physical therapy and X-ray technician, night supervisor, to mention only the more obvious—and it is plain that only a busy and well-financed hospital can long endure such a salary list. Add to this the turn-over in pupil nurses, the regular overhead, and the unavoidable losses in hospital fees, the cutting down of our clientele by the encroachment of community, State and other public free hospitals and free dispensaries, and we are pyramiding a burden of expenses too great to be borne, which shortly only a publicly endowed and tax supported institution will be able to meet.

And yet we find hospitals squandering uncounted thousands of dollars in marble fronts and needless ornamentation, largely for advertising purposes, for they serve no good ends for the patients within. We see the operating room provided with sterile goods for six nurses and assistants where one would be sufficient, and probably safer. We see thousands of dollars wasted annually on equipment of questionable utility, often out of date and its unutility demonstrated before it is paid for—a monument to the high power salesmanship of the manufacturers' representative. We see the rising standard of qualifications of nurses and the higher fees demanded by them reducing their availability for people of average salary, and the field even now being taken by practical nurses and attendants and midwives. And the end is not yet.

The outlook is not hopeless, however. There are hopeful trends and tendencies. If we of the hospital profession will clear our vision, the public can be gradually brought to right action. But only by our cooperation will the hospitals gain the proper support of all the citizens.

The primary necessity is a proper understanding of conditions on the part of the physicians, and unwillingness to sacrifice mistaken self interest to the common good. In many communities several hospitals could be combined under community maintenance and management, with untold benefits to both the profession and the people. Once the physicians unite and cooperate the laity can be persuaded.

There should be a more general and intelligent utilization of National Hospital Day—not to advertise the individual hospital, but to advance the community hospital idea among the people. Articles of interest and information should be published in our newspapers and periodicals. The radio should be utilized, laws securing more support for hospitals should be secured. But above all else, the committee feels that the mutual good will and wise cooperation of the physicians in the various communities is of most importance for the welfare of our hospitals and for those who serve or who are served by them.

A. S. RISSER,
A. W. WHITE,
P. N. CHARBONNETT,
Committee.

SCIENTIFIC WORK

We, your Committee on Science and Scientific Medicine, beg leave to make the following report:

The medical profession of Oklahoma is keeping step with the general advance in scientific understanding and treatment of disease, but is not contributing to the discovery of scientific facts nor methods for a better understanding or treatment of disease, with the exception of investigation in progress in the departments of the Medical School of the State University, which may have such possibilities. This state of affairs is not due to any lack of ability nor desire on the part of the members of the Association, but to conditions of which the Association should take cognizance and attempt to remedy.

That the medical profession of this State have a keen interest in and are keeping step with medical advance is evidenced by (a) the increasing numbers of practitioners who attend clinics and courses in medical centers in this country and abroad, and the numbers who attend the extension courses given at the medical school by the university; and (b) by the increasing numbers who attend medical conventions, general and special, and the interest shown in the programs given at these conventions. But of the great medical problems of this century, prophylaxis individual and public, the cancer question in its various phases, industrial and intrinsic causes of disease and ill health, no one is attempting to solve. This we feel is due to: (1) lack of facilities; (2) lack of leadership and guidance; (3) lack of finances; (4) pressure of the economic situation. In some cases, e.g. (1) the lack is more fancied than real. The cases which daily pass under each ones notice are the material that must be studied in any problem. The lack is more a knowledge of methods than facilities as such. The fault here is perhaps that of medical education which, in the main, at present, herds the students as it were, from the pastures of general education through lanes and chutes to be loaded and shipped out as physicians. They must think, but think prescribed thoughts, learn, but learn formulas and stereotyped technique. This is no criticism or requiring proven technique, but a student fed on this type of instruction, then thrown into the economic maelstrom, if he has not already learned methods of investigation, is not apt to learn them after he begins practice. This matter is, however, a problem of medical education, but recognition of it by this Association and some request that it be solved, and cooperation in its solution should be made. Points (2) and (3) will be discussed later.

In the laboratories of the medical school, investigations are in progress in reasons for errors in sugar determinations, which will be of great importance in clinical pathology; studies in recuperative process in epidermis, which will be of value in skin grafting and healing wounds; effects of certain drugs on blood, of importance in use of such drugs; nature and character of endarteritis and arteriosclerosis, which may throw light of therapeutic value on those conditions; and a number of other studies of value are being pursued.

We wish to make a few comments and recommendations on the following points: The lack of

leadership and finances for scientific investigation in medical problems. We do not wish to be understood as casting any aspersions or criticisms on the State Board of Health nor the departments of the medical school nor other agencies engaged in general medical work, because they are all doing excellent work and all that can be expected of them. They have their daily grist of work to do and have not the time to give to the propositions. What we do mean is that there should be a research institute created, manned by competent workers who would give their time and attention to initiating, conducting and assisting in research work. Further that facilities and funds be provided for this work. We recommend that this State Association take steps to encourage and demand that this need be satisfied. The Association could itself make an endowment for such work. The State Association of Missouri has pledged itself to an endowment of \$1,000,000.00 and has paid in \$250,000.00 of it several years ago. Such an endowment could be raised by increasing the dues of its members. The Association could further individually and by units encourage gifts from rich people to such a program, making a living monument for the donor. In this way this association could be rendering a real service to itself and the State.

Respectfully,

R. M. HOWARD,
P. P. NESBITT,
H. C. WEBER.

CANCER STUDY AND CONTROL

To the Officers, the House of Delegates, and the Membership of the Oklahoma State Medical Association.

We, your Committee on Cancer Study and Control, submit our report for the year of 1929-30, as follows:

We have not attempted any major activity during the year though have not been entirely idle since our last meeting. We have directly or indirectly been responsible for numerous programs featuring cancer and have distributed several hundred pamphlets furnished by the American Society for the Control of Cancer. There have been numerous addresses upon the subject of cancer given before both public and medical audiences.

Through the courtesy of the American Society for the Control of Cancer, we have been privileged to book for a period of two weeks the wonderful "Dr. Canti Three-Reel Cancer Film." At the time of this writing, our program has been outlined and dates given for the showing of this film before joint meetings of county medical societies in different localities which will cover the larger portion of our State. The program begins with the exhibition of the film at Chickasha, April 8th, and ends at Oklahoma City, April 19th.

Physicians everywhere have shown an increasing interest in and have become more anxious to obtain knowledge upon the subject of cancer. The public also has manifested even a greater interest in certain localities than physicians, due, no doubt, to the wide newspaper publicity of the experimental work upon cancer which has been announced from some two or three different research laboratories within the past eight months. These reports have been carried frequently and

extensively by the Associated Press. Perhaps a larger space has been devoted to the discussion of cancer by the public press during the past year than in any previous year in which cancer education has been undertaken.

There may be a question raised as to the value of this publicity though all will agree that it may possibly aid in the stimulation of greater interest on the part of the public, which may eventually lead to national or private appropriations or endowments for further research work. European countries, several years ago, set an example by making appropriations for cancer research work though our own beloved United States has sadly neglected such assistance. Time and space will not permit of even a brief review of all the interesting and most valuable announcements from research laboratories which have recently occurred.

One of the most outstanding and one which is destined to bear fruit was made by Dr. Boris Sokoloff of St. Louis, before the Congress of Physiology at Boston, August 19, 1929. In this report he announced the lytic degenerative changes which he had obtained in cancerous growths by the injection of various organic extracts, more especially that of the omentum and suprarenal cortex extract to which has been added an iron salt.

Since January 1st, the newspapers, also the medical journals, including the Journal A. M. A., have devoted much space, including numerous editorials upon the cancer research work of Drs. Coffey and Humber. These doctors have been subject to much criticism by our profession for lack of proper censorship of these articles though the doctors themselves appear to be in good standing with their state society and have endeavored to give careful, accurate reports to the Journal of the American Medical Association as regards their work.

No clearer explanation of their work and claims can be here delineated than that of a verbatim quoting of the last paragraph of their article which was published in the Journal of the American Medical Association, February 1, 1930, page 359:

"This work to date has been purely of an experimental nature to determine the effect on malignant tumors. Softening with liquefaction has occurred in all tumors thus far studied. These tumors, except one, were carcinoma of different types; the exception is a recurrent spindle cell sarcoma, with extensive metastases. Because of these results, a broad plan of study has been outlined with a determination to discover as soon as possible the value, if any, of this extract in cancer. Until such time as additional data becomes available, we wish to impress on the medical profession the fact that the work to date, although quite promising, is still in the experimental stage and therefore decidedly inconclusive."

Summarizing, it appears that the past year will be an epoch in the history of medicine on account of the unusual interest stimulated in study and research upon the etiology and treatment of cancer by organic glandular extracts.

EVERETT S. LAIN,
Chairman
FRANK MCGREGOR,
JAMES STEVENSON

REPORT OF COMMITTEE ON MEDICAL ECONOMICS

"Keep your office and your office will keep you." That is a saying that is absolutely true. The doctor who pays attention to his practice, who gives his patients to understand that he expects to be paid for his services, who works at his job, need not worry that he will not succeed financially. He will have sufficient money to get away at frequent intervals for post-graduate study and for recreation. This is a duty that he owes to his patients as well as to himself.

In the matter of investments, the doctor has long been included on the "sucker lists" of many "get-rich-quick" schemes. We cannot blame our patients for trying out the various health fads that come along when we ourselves invest money so foolishly. We must get the habit of consulting our banker on the matter of investments the same as we would have our patients consult us on the matter of health. He is an expert in his line the same as we must be experts in ours.

The doctor must guard against the use of his time and information being capitalized on by promoters of pseudo-health schemes, either individuals or organizations. We should give all the assistance we can to the spreading of knowledge along the lines of public health. But the doctor should not be expected to give his professional services free, in the way of examinations or treatment, to persons who are able to pay. Even the burden of taking care of the poor should be borne by the public funds, state, county and city. If the average charge for an office call is \$1.00 and the average cost of a vaccination point is 15 cents, why should the State furnish only the virus? Part time or full time health officers, doctors or nurses should do this work and there should be a sufficient number employed to be able to handle it.

Study the business side of your profession. Keep accurate records of your cases. Keep accurate financial accounts. Send out your statements promptly. Have some follow-up plan. Turn over your past due accounts to a retailer's association or attorney for collection before they are outlawed. Your professional knowledge is your stock in trade and you must make it pay dividends. If you do not do this you cannot properly meet the responsibilities that you are expected to assume in the community in which you live. You cannot give your best service to those who come to consult you.

Respectfully submitted,

WM. H. BAILEY,
Chairman.

REPORT OF COMMITTEE ON CONTRACT AND INDUSTRIAL PRACTICE

In making the report on contract and industrial practice the committee feels that a brief resume of the laws relating to the medical features of the law, should be made.

The employer coming under the law is required to furnish adequate medical services for an injured employee and he can indicate whatever physician he wishes to have take care of that case, and direct where the employee shall go for treatment. If the employee takes matters into his

own hands the Commission does not have jurisdiction. However, the employer may waive his right in the case and should he do so the insurance carrier is liable. Should the designated physician advise that the injured employee be treated elsewhere, this may be done upon the authority of the employer. Should he not furnish the proper care the employee is entitled to go to some physician for care or to appeal to the Commission for medical treatment. It is implied that the insurance carrier, as it has the same interest as the employer, can designate the physician where agreement is reached with the employer, and in a general way acts as the employer's agent in matters relating to the injured employee. A man is entitled to sixty days' treatment and the payment for hospital, nurse, medicines and appliances necessary in his case. Should the period of treatment extend beyond sixty days and the employer agrees or the Commission be appealed to, the period of treatment can be extended for such time as is necessary. The charges in all cases should be those commensurate with the patient's ability to pay and the usual charges for similar services in the locality from which the case originates. Charges for over \$100.00 are subject to approval by the Commission. Where the doctor and the insurance carrier admit the necessity of a nurse after the sixty days period the doctor is impliedly authorized by the insurance carrier to employ the nurse.

A physician may present his bill any time within three years after rendering the service in those cases in which verbal authority was given by the employer and within five years if a written contract existed. If an injury ends with death to the employee that case is without the jurisdiction of the Commission and comes within the jurisdiction of the State courts, but the insurance carrier is liable for expenses of necessary treatment. If an employee refuses examination when ordered by the Commission, he is denied compensation from that time until such a time as he presents himself for examination. The Commission has jurisdiction to make awards to physicians for services rendered where these services were rendered on verbal request of the employer. Where a written contract is in effect the provisions of the contract hold.

It is the observation of the committee that the status of the industrial employee and the physician involved in the State of Oklahoma is much better than that in many other states inasmuch as the law provides all the adequate treatment in any case. In some states this is not true, there being a definite limit both as to the amount of expense and to the period of hospitalization.

The committee believes that the attitude that some of the insurance companies and larger employers are coming to, that the injured employee should be taken care of as far as possible in that portion of the State where the injury originates and where adequate hospital and medical services are available, is correct. It decries the practice of attempts on the part of employers and insurance companies to reduce the standard fee system of the profession. It is true that in the past there has been injustice on both sides and in some cases the physician has attempted to charge fees out of proportion for the service rendered and has not followed the spirit of the law. On the other hand some insurance carriers have arbitrarily reduced fees without proper con-

ference with the physician. Most of these last cases have resulted from the action of clerks rather than responsible members of the insurance organization and the profession is cautioned on its side that it should be careful as to the amount of fees charged in a system so wide spread as the application of the industrial law. The law clearly indicates that the employer is the one who has the authority to designate the physician and this he may do through the insurance carrier. It is the understanding of the committee that the American Federation of Labor is in full accord with this principle as it has in mind the proper care of its members and fully realizes that the judgment of the employe or members of his family often leads to grave errors in treatment and that the employer and the insurance carrier may be in a much better position to choose the proper type of institution and the proper type of physician that should be designated to take care of the injured employe.

There is a tendency in some quarters for the grouping of cases in some medical center from all over the State. This tendency carries with it the possibility of a great deal of injustice being done various good hospitals and able men scattered over the State and except in rare instances where unusual cases occur or in those instances where large corporations have men in isolated districts, it is not believed to be the best method of procedure as it tends to interfere with established medical economics of the State.

However, the committee desires to emphasize the point that the proper and adequate care of the patient is paramount to everything else. If the physician and surgeon is without necessary experience or facilities, capable consultation should be had and the patient provided with means and measures to preserve life, function and form restoring him to family and economic status as soon as possible.

Intelligently supervised industry will recognize the value of trained employes and endeavor to conserve all manpower for by such action they will reduce their overhead and the ultimate expense to society.

FRED CLINTON,
O. S. SOMERVILLE,
PAT FITE.

REPORT OF COMMITTEE ON CRIPPLED CHILDREN

At the meeting of the committee last year it was decided to send out to the doctors of the State a copy of the Crippled Children's law and information concerning Crippled Children's Clinics.

Through the secretary of the Society, Joe Hamilton, the work was accomplished. On February 22, 1930, Mr. Hamilton sent letters to each doctor in the State which described the method of holding clinics. He explained how clinics are planned in each county and arrangements for the examination made through the respective county chairmen and cooperation of the local medical association and civic clubs. The examinations are made and recommendations given in each case.

He further explained that all that was neces-

sary to send a child to the Crippled Childrens' Hospital was to secure an order from the County Judge and the signature of the attending physician.

WADE SISLER,
EARL D. McBRIDE,
L. C. VANCE.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

The Effect of Parathyroid Extract and Calcium Upon Calcification and Healing in Pulmonary Tuberculosis. Burgess Gordon and A. Cantarow. American Review Tuberculosis, December, 1929.

Since calcification of a tuberculous lesion is considered an indication that the process is healed, numerous attempts have been made to promote calcification of such lesions by the administration of calcium salts. It is significant, perhaps, that the majority of favorable reports are the result of clinical observations since striking data have not been obtained from experimental studies, although Pelouze and Rosenberger found that the combined administration of parathyroid extract and calcium to animals resulted in a gain in weight and limitations of the extent of the tuberculous process.

Despite the fact that evidence has not been obtained in support of the theory that tuberculosis is associated with demineralization, and that no increase in calcification of tuberculous lesions in patients has been noted following calcium administration, the salts are still widely employed in the treatment of pulmonary tuberculosis. In addition to the use of calcium salts in disturbances of mineral metabolism parathyroid hormone has been widely employed.

In an investigation undertaken at the Chest Department of the Jefferson Hospital, Philadelphia, in 1925, parathyroid extract was administered to 60 tuberculosis patients (10 units twice daily) to determine the effect upon symptoms, calcification and the course of the disease. The following data were noted: In most instances an increase in blood-calcium (1-3 mgm. per 100 c.c. of blood) was maintained (normal variation 9-11 mgm. per 100 c. c. of blood). There seemed to be a favorable influence upon strength and on vague muscular pains, and a transient sensation of warmth and dryness of the skin and mucous membranes were noted. Cough and amount of sputum were diminished in 34 patients; those patients with nonproductive cough experienced marked discomfort, due apparently to the increased dryness of respiratory passages; pain of acute pleurisy was relieved in 14 patients and in several instances a decidedly favorable effect upon haemoptysis occurred. There was no evidence of decalcification or increased calcium deposition in the lungs.

Since the use of parathyroid extract failed apparently to influence calcification, further studies were undertaken. Parathyroid extract (20 units every 48 hours) and calcium lactate (30 grains three times daily) were administered to 14 patients with pulmonary tuberculosis for a period of one to six months. The results were

similar to those noted in the first group. Roentgenographic studies failed to reveal any change in calcification of the lung-fields or bones of the hands and there was no visualization of the blood-vessels.

The authors say: "It appears that diseased or potentially diseased tuberculous tissue is not influenced directly by hypercalcaemia and that parathyroid hormone and calcium should not be administered with the expectation of inducing calcification."

The Average Duration of Fatal Phthisis by Harry Lee Barnes and Lena R. P. Barnes. American Review of Tuberculosis, December, 1929.

The average duration of phthisis as previously tabulated has varied considerably at different times in different countries.

In order to compute the duration of a disease the dates of the onset and termination must be known. Because of the difficulty of diagnosing a slight tuberculous infection, the dates of onset are, with rare exceptions, unknown in all human cases of pulmonary tuberculosis. The onset of the disease, as estimated by this article, is based solely on the the patient's statement as to the time when his ill health began. The accuracy of these histories depends on the education of the patient, his knowledge of the disease, and on the experience in the work of the physicians who take them.

A factor influencing the duration of life in pulmonary tuberculosis is the financial status of the patients—the duration of life being considerably longer in wealth patients than that of patients in poorer circumstances.

Taking into consideration the factors previously mentioned which might influence the accuracy of these histories, the authors present the following statistics: (1) The average duration of life for the 1,567 males was 37.93 months, for the 970 females was 34.81 months, and for the 2,537 patients it was 36.72 months; (2) The average duration of life of 2,424 white patients was 37.81 months against 19.59 months for 111 colored patients, and 44.50 months for 2 yellow patients.

Studies on Changes in the Finger Nails in Pulmonary Tuberculosis with Special Reference to Pitting (Depressions) and Its Relationship to Active Disease, by Albert G. Hahn. American Review of Tuberculosis, December, 1929.

A description of phthisical incurvation of the nails appeared in literature as early as the beginning of the third century, but, since then, it is interesting to note that only a few references have been made to changes in the nails in tuberculosis.

A study of the nails of tuberculous patients has been made at Trudeau Sanatorium. The results of this study are based upon observations on 200 subjects, 150 of whom were suffering from pulmonary tuberculosis and fifty of whom acted as non-tuberculous controls (negative findings on X-ray, physical and bacteriological examinations). Periodical examinations were made on the finger nails of tuberculous patients during their residence at Trudeau Sanatorium. All abnormal changes were compared with other clinical data and the following conclusions were drawn: (1) Pittings or depressions in the finger

nails were observed in 100 per cent in a group of patients suffering from active pulmonary tuberculosis as compared with 6 per cent of a group of patients who had been inactive for a relatively short period, and a third group of inactive cases (without symptoms of activity for from 1 to 25 years) in whom this change was found to be absent in 100 per cent of the cases studied. Therefore, it is the opinion of the authors that the occurrence of these characteristic pittings in a known case of pulmonary tuberculosis should be regarded as indicative of recently active tuberculous disease provided no other disease is present; (2) Hippocratic incurvation was found in 76 per cent of the active tuberculous group, 50 per cent of the inactive tuberculous group, and 30 per cent of the ex-patient workers at the Sanatorium. This change did not occur in any of the non-tuberculous controls; (3) Cyanosis of the finger nails was noted in 66 per cent of the active group as against only 2 per cent of the inactive or chronic group. This change was well marked in all cases in which the disease was rapidly advancing, as evidenced by clinical symptoms and roentgenographic studies. From these observations it is believed that cyanosis may be of value in prognosis; (4) Ridging seems to be of less importance than the other changes described.

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ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Traumatic Neurosis by Joseph Fetterman, J. Am. Med. Assn., xci, 315, August 4, 1928.

He believes traumatic neurosis is due to: (1) Hereditary or acquired weakness of the nervous system. This weakness may be brought about by prolonged sickness or by poor early training; (2) by shock from injury or fright; (3) by desire for sympathy or protection from disagreeable things in surroundings; (4) by a desire for compensation or revenge.

Symptoms: Hope is replaced by fear, calmness by anxiety. There are sleeplessness, palpitation and tremors. The symptoms of toxic goitre. The patient's mind is centered within himself and symptoms become exaggerated. He listens to his arteries beating and his heart against his chest wall.

The local symptoms are usually fixed on the area injured and there may be aches, pains, hysterical blindness, or paralysis.

Treatment: If symptoms are relieved after compensation, that does not prove that the patient is a malingerer, because many of the causes of his condition have actually been removed.

Dr. Fetterman believes treatment should begin in teaching fortitude and courage to the young. Neurosis is not found among Indians or natives of Labrador.

At the time of accident, treatment must be physical and mental; fright lessened; fears calmed. Early complete settlement should be made. For advanced cases psychotherapy is indicated. Careful examination and friendly advice is necessary to win confidence.

Arthroplasty of the Knee by W. C. Campbell.

Surg. Gynec. Obstet., xlvii, 89, July, 1928.

The author's technique, which has been previously described, is given in detail. The indications, contraindications, and limitations are enumerated. This operation may be considered routinely, only when ankylosis is due to acute pyogenic infection or trauma. Multiple ankylosis renders the problem more difficult by interfering with after-treatment. In monarticular tuberculosis joints the operation is seldom indicated. Arthroplasty may be employed in low grade progressive arthritis, such as arthritis deformans, but the prognosis is less favorable. Shortening of more than three inches is a contraindication. Eburnation and osteoporosis of the bones on each side of the joint are unfavorable conditions. Extensive scar tissue with adhesions of the soft tissues about the joint should be eliminated by preliminary operation. The age should be between puberty and forty years. Special care to avoid too much motion is necessary in obese subjects. The occupation and social status of the patient are also important considerations. An analysis of fifty-seven cases is presented.

Contribution to the Study of Senile Osteomalacia by De Nito. *Riforma Med.*, xliii, 126, February, 1927.

Two personally observed cases of senile osteomalacia. Subjective symptomatology, clinical characteristics, and anatomic alterations of the type found in the adult. Onset with pains, soft bones, spontaneous fractures, nervous excitability, death by marasmus. Facts worthy of note are: localization, usually in the thorax and in the pelvis; flattening of the vertebrae; deformities of the sternum, of the clavicles and of the ribs; kyphosis of the spine; diminution of stature. Ordinarily there is not observed the deformity of the extremities which is a particular characteristic of osteomalacia of the adult. The identity of the two osteomalacic pictures, senile and puerperal, places on the table for discussion the value of the endocrine factor at the time of the onset of this process. In cases studied by the author, in one

colloid goitre was found, in the other evidently hypophyseal alterations. (Studies of Honnicke, of Tolot and of Sarvonat).

CLINICAL CONFERENCES OF THE ST. LOUIS CLINICS

The St. Louis Clinics will depart from its usual procedure in conducting postgraduate courses in the fields of medicine and surgery. The Clinical Conference which will take place in St. Louis, Missouri, June 9 to 21, inclusive, will consist of a series of lectures, demonstrations, clinics and round-table luncheon discussions on medical and surgical subjects of interest to the general practitioner. No attempt will be made to arrange the material in special courses, but it has been so selected and arranged that practically all fields of medicine, surgery and allied subjects will be included.

St. Louis is fortunate in the possession of two outstanding medical schools of the country with a wealth of unsurpassed clinical material. The present conference is offered to give the profession an opportunity of coming into close contact with this valuable material and the many excellent local clinicians.

The subjects have been selected with the specific idea of assisting the practitioner who wishes to refresh his mind on many of the common things which are met with in general practice. The luncheon round-table discussions which will be participated in by several clinicians noted in their particular fields should be very interesting and most valuable. In these discussions an attempt will be made to carry out the symposium idea so that the subject will be completely covered.

Clinicians of national and international prominence have accepted the invitation to participate in the conferences. This type of clinical conference has a distinct place in post-graduate medical teaching. We congratulate the St. Louis Clinics upon the recognition of this idea and upon inaugurating the conference which doubtless will be an annual event.

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS

Examination held at State Capitol, Oklahoma City, March 11th and 12th, 1930.

The following applicants passed.

| Name | Year of Birth | Place of Birth | School of Graduation | Year of Graduation | Home Address or Previous Location |
|---------------------------|---------------|--------------------|----------------------|--------------------|-----------------------------------|
| Sharp, J. G. | 1872 | Texas | Ft. Worth Med. | 1904 | Francis, Okla. |
| Bowles, Wilhelmena B. | 1892 | Clarksville, Tenn. | Meharry Med. | 1922 | Langston, Okla. |
| Collier, Boy Norfleet | 1900 | Marhley, Texas | Univ. Louisville | 1925 | Tipton, Okla. |
| Davis, Arthur H. | 1893 | Beattyville, Ky. | Univ. Louisville | 1919 | Tulsa, Okla. |
| Davis, Robert Roe | 1886 | Canton, Ga. | Baylor Med. | 1910 | Westville, Okla. |
| Duffy, Francis Michael | 1896 | Williamsburg, Ia. | Creighton Univ. | 1923 | Enid, Okla. |
| Echrich, Jerome Andrew | 1901 | Neola, Ia. | Creighton Univ. | 1928 | Elk City, Okla. |
| Farrell, Edward Joseph | 1882 | Chicago, Ill. | Northwestern | 1907 | Tulsa, Okla. |
| Hartje, Harry Ferdinana | 1894 | Minneapolis, Minn. | Creighton Univ. | 1921 | Adair, Iowa |
| Huff, Karl Rhoten | 1881 | Hedrick, Iowa | Drake Univ. | 1910 | Lenox, Iowa |
| Huff, Leoman Dustin | 1884 | Hedrick, Iowa | Drake Univ. | 1910 | Lenox, Iowa |
| Jacobs, Minard Friedberg | 1899 | Kansas City, Mo. | Univ. of Mich. | 1923 | Okla City, Okla. |
| Knowles, Charles Erastus | 1898 | Springwater, N. Y. | Creighton | 1924 | Parsons, Kansas |
| Landers, Clyde Harrington | 1904 | Sillicea, Iowa | Harvard Med. | 1928 | Seminole, Okla. |
| MacKenzie, Ian | 1903 | Canada | McGill Univ. | 1927 | Tulsa, Okla. |
| Marshall, John Calhoun | 1881 | Hannibal, Mo. | Medio-Chirurgical | 1904 | Tulsa, Okla. |
| Parker, John A. | 1875 | Howard, Mo. | K. C. Hahneman | 1902 | Kansas City, Mo. |
| Rinkel, Herbert John | 1896 | Illinois | Northwestern | 1926 | Okla. City, Okla. |
| Schmidt, Eleonora Louise | 1894 | Flucom, Mo. | Washington Univ. | 1927 | Norman, Okla. |
| Thompson, Herbert Orion | 1898 | Nashville, Tenn. | Vanderbilt | 1926 | Tulsa, Okla. |
| Walden, Dewey Hobson | 1899 | Meliss, Texas | Northwestern | 1929 | Okla City, Okla. |
| Agree, Aldred Alan | 1902 | Detroit, Mich. | Detroit Med. | 1929 | Elk City, Okla. |

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President, 1930-31, Dr. E. S. Ferguson, Oklahoma City.
 President-elect, Dr. Edmund S. Ferguson, Oklahoma City.
 Secretary-Treasurer-Editor, Dr. Claude A. Thompson, Muskogee.
 Meeting Place, 1930, Shawnee.
 Delegates to the A. M. A., Dr. McLain Rogers, Clinton, 1930-31; Dr. W. Albert Cook, Tulsa, 1929-30; Dr. Horace Reed, Oklahoma City, 1929-30.

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Cancer Study and Control. Dr. E. S. Lain, Chairman, Oklahoma City; Dr. James Stevenson, Tulsa; Dr. Frank McGregor, Mangum.
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Crippled Children. Dr. Wade Sisler, Chairman, Tulsa; Dr. Earl D. McBride, Oklahoma City; Dr. L. C. Vance, Ponca City.
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STATE COMMISSIONER OF HEALTH

Dr. C. W. Beson, Oklahoma City.

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District No. 2. Roger Mills, Beckham, Greer, Harmon, Washita, Kiowa, Custer, Jackson, Tillman, Dr. Frank H. McGregor, Mangum. (Term expires 1932).

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District No. 9. Hughes, Pittsburg, Haskell, Latimer, LeFlore, McIntosh. Dr. Leonard S. Willour, McAlester. (Term expires 1931).

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See Description, Journal A. M. A.
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ROSTER NUMBER---PRESERVE FOR FUTURE REFERENCE

THE JOURNAL

OF THE

OKLAHOMA STATE MEDICAL ASSOCIATION

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PRESIDENT'S ADDRESS

E. S. FERGUSON, M.D., F.A.C.S.
OKLAHOMA CITY

Oklahoma State Medical Association
Shawnee, Oklahoma
May 27, 1930

A year has passed since the Oklahoma State Medical Association entrusted the guidance of its affairs to one whose activities in our behalf and in behalf of the advance of medical science, were cut short by the hands of death.

The inspiring message which he delivered to us on the occasion of his acceptance of office expressed wishes and desires for the association's progress which it has been my endeavor to fulfill. As his successor I left his organization intact and made no changes in the committee assignments or working program which he had inaugurated. Such duties as I have performed by virtue of my succession to the presidency during the past year have been performed, not as my own official act, but as the concluding accomplishments of one whose life of service in our profession surely merited such vicarious prolongation as my own administrative powers might be able to ensure.

In fact Dr. Claude T. Hendershot is today concluding his term of office and I am only now in my own right taking over the duties of the presidency. I am grateful to the members of this great State association for the honor conferred upon me. It is an expression of your regard and confidence which is highly prized by me, a responsibility which I deeply appreciate. Though in the past, the shafts of my fondest hopes have fallen short of the position which I now occupy, I trust I shall be able, with your help, to fulfill the obligations imposed upon me by your confidence and trust.

Our Oklahoma State Medical Association today has a membership of more than sixteen hundred. So long as there exists qualified physicians in the state

who are not members our efforts to bring them into the association should not slacken. The association fellowship alone should be ample inducement. The interchange of scientific ideas and experiences is of greater importance.

Our purposes are similar to those of the American Medical Association in whose constitution we find the words—"to promote the science and art of medicine and the betterment of public health."

During the past half century, under the influence of the study of micro-biology, medical science has made rapid strides. In the field of public health, progress has been notable. Micro-biological stimulus has resulted in the upspringing of research and diagnostic laboratories in all parts of the world.

Disease prevention has supplanted the cure of disease as the social ideal of medical science, and in the light of this new ideal our public health services have developed numerous significant and important agencies. Our water supplies have been made safe; sewage disposal has been entrusted to the controls of sanitary engineers with keen public realization of its potentialities for disaster under thoughtless direction; our food is inspected by chemists and bacteriologists; occupations and their relations to diseases are being studied and protective measures taken; public and private buildings are being constructed under regulations dictated by public health considerations; we are demanding the reduction of industrial hazards.

Without losing sight of the art of medicine; without slackening in our efforts to cure those overtaken with the affliction of disease, we must redouble our endeavors to make the present serve the future; doing today those things which will prevent the disease wastage of tomorrow.

The expectancy of life has been increased from forty to fifty-eight years within a comparatively short space of time. Through improved methods of care, feed-

ing and other preventive measures, infant mortality has been greatly reduced.

Vaccination and public health methods have virtually eliminated the annual autumnal contribution of typhoid fever to the doctor's bank account. Instead of yielding annual toll to this dread disease we now regard its very existence as a community disgrace.

Smallpox, diphtheria and many other infectious diseases have yielded to intelligent and timely measures for prevention and cure.

In the light of ordinary business principles the enthusiasm with which the average physician greets new discoveries looking toward the prevention of disease constitutes a veritable paradox. With wholesome philosophy he accepts the lessening demand for his services in the art of curative medicine and becomes a willing servant of public health, realizing that a curtailment of his income must naturally follow.

Fortunately this micro-biological age and the so-called mechanical age made their arrival on the stage of civilization at the same time. With improved methods of transportation bringing all nations and races of people together with varying disease susceptibilities and immunities, our very species might have been swept from the face of the earth through pestilence and disease had it not been for the rapid strides made in medical and sanitary science and resultant public health practices. A sudden interruption of the protective services which come through these measures would usher in an assault upon our boasted civilization by the parasitic emissaries of disease which would undermine its very foundations and cause it to topple into a formless and lifeless heap. The existence of the human race is distinctly dependent upon the sustained progress of medical science. Medical science is a term, moreover, that does not embrace the fictitious contributions to human welfare claimed for innumerable quacks, drugless practitioners, faith healers, etc., who present no authenticated evidence of important contributions to the prevention of disease or to the restoration and preservation of health.

The seeming indifference of the public in the face of facts, the recognition of which means so much to personal and social welfare, naturally brings discouragement and retardation to the progress of

medical science. We, as a profession, must never forget, however, that the masses are not in possession of sufficient knowledge to enable them to formulate sound judgment on health matters. A study of the history of medicine reveals the fact that opposition to scientific progress has nearly always been synonymous with ignorance of the fundamental principles involved. The obstacles so often found in the path of needed medical legislation are born of ignorance and nursed by prejudice and intolerance, both children of the same womb.

The state association should formulate a program which will definitely commit it to the task of educating the public. The people should know that their present pursuit of happiness is made secure through the medical profession and that the safety of their children and their prospects for future development are dependent upon the sustained integrity of the science of medicine. Some special provision for the dissemination of such knowledge should be made and the agencies already available should have the undivided support of the medical profession. Among such agencies may be mentioned the official public health organizations. Other organizations, such as the National Tuberculosis Association with its state and local auxiliaries must be given sustained public and medical support. Such publications as *Hygeia* should be made accessible to an ever widening circle of readers.

Perhaps the deplorable state in which the administration of public health in our own commonwealth finds itself is partially due to the fact that we have kept our light under a bushel. The people of the great state of Oklahoma would not tolerate present conditions if they fully understood the importance of securing a Commissioner of Public Health thoroughly qualified by training and experience to discharge the significant duties of his office and the necessity of perpetuating his tenure until some legitimate cause arises for his removal.

If properly informed the people would promptly see the desirability of removing the state health department from the domination of politics and they would act upon this realization. They would make sure that civil service principles governed appointments and removals; that merit and experience would have the right of way over political expediency and the in-

fluence of personal friendships. Of greater importance to the citizenship of the state would be the protection of a co-ordinated and well sustained public health program.

The following significant statement is taken from Dr. Thayer's presidential address before the American Medical Association:

"In many regions lay public health organizations are arising which seek, on the one hand, to co-operate with city and state departments of health, on the other hand to guard and remove them from unhealthy political influence."

I would suggest that the State Medical Association go on record as favoring a non-partisan health board, the members to be chosen because of their knowledge of public health matters and their interests in the general welfare of the state. The duties of this board should include the selection of a well qualified Commissioner of Health. It should serve as an advisory committee in the administration of the health department and in the appointment of county health officers.

Influences at work in this age of micro-biology have resulted in conditions leading to unjust criticisms of the young physician for an alleged unwillingness to practice in rural communities. Again the lack of knowledge among the lay people brings seeming discredit upon the medical profession.

What a different attitude the public might take could it be brought to realize that medical science has so depleted the ranks of disease in rural communities and so improved and refined the methods of diagnosis that it is often impossible for a physician to retain his self respect, secure legitimate opportunities for professional advancement and at the same time make a living in such communities. Many of the common infectious diseases, such as typhoid fever and diphtheria, from which the country doctor derived a hard-earned living in former days, have practically yielded to medical science and the more chronic diseases, more difficult of diagnosis seek the refined methods of diagnosis and treatment now found only in medical centers. The physicians are not, as is often thought, too good in their opinion for the rural community,

but the rural community, from the medical standpoint is not good enough for the physician. What is the solution?

We must, with the co-operation of the public health, through education, bring the facilities for refined methods of diagnosis and special therapeutic procedures, to the rural communities. In other words we must establish county or district medical centers with well-equipped hospitals as their units. Such hospitals might be partially supported by taxation and partially by private fees. With such a center available the well-trained young physician can afford to locate in rural communities.

Again we may say through the influence of this micro-biological era many laymen of influence and wealth have become interested in the progress of medical science and have contributed large sums of money for the establishment and endowment of research laboratories, hospitals, medical libraries, etc. They have been prompted to make these contributions because they could see possibilities of glorious returns from the distribution of wealth through these channels. In so far as is possible to determine, there has never been a note of disappointment where funds have been placed at the disposal of conscientious workers.

With the spontaneous flow of wealth in Oklahoma, often leading, as it does, to the precipitate enrichment of individuals who have known the hardships of life and experienced the hazards of disease, is it not reasonable to believe that some of this wealth may be drawn into medical channels for the benefit of those still doomed to suffer from disease which may yet yield to well directed research?

Visible sickness and suffering have their appeal and there is usually a ready response. Knowledge of the possibility of prevention through research and investigation likewise carries an appeal, but there must be knowledge.

Once more the need of education is made evident. Let us strive to win the approbation of the public (1) by a continuation of the gracious and kindly practice of the art of medicine; (2) by the judicious pursuit of the science of medicine; and (3) by a modest but confident dissemination of the knowledge which has to do with both the art and science of our great profession.

TREATMENT OF ACUTE HEAD INJURIES*

ANTONIO D. YOUNG, M.D., F.A.C.P.
OKLAHOMA CITY

It has occurred to all of us that substantial agreement in treatment of certain emergencies would be of value. We realize that standardization of treatment can scarcely be adapted to any great number of conditions, but can be in a few instances—one of these to my mind is the early treatment of head injuries. The treatment of head injuries causes more anxiety than almost any other emergencies of practice, and in the early stages prognosis is quite uncertain.

During the past decade there have appeared many valuable papers dealing with head injuries. I will attempt to touch upon some of the most important points in the treatment of acute head injuries. Because of the increasing number of industrial accidents, the problem of the proper management of such injuries is of increasing importance. The diagnosis in most cases is simple, but may be more or less difficult. In arriving at a diagnosis, as for instance, when the inquiry is accompanied by intoxication, we use chiefly, clinical signs and symptoms combined with the X-ray findings and lumbar puncture, if the attending physician wishes to use such a method. The most important point to keep in mind in every fracture of the skull is what happened in the intracranial cavity.

Cases of acute cerebral trauma fall into two large groups, those requiring surgery, and those requiring dehydration or drainage.

The indications for surgery are a compound fracture of the skull, a depressed fracture when the depression is such as to produce symptoms or impaired function (minor depressions should be allowed to wait for at least two weeks in order to judge of their need of repair), and middle meningeal hemorrhage or focal clot. There is rarely any other indication for surgical interference.

Unless there are associated with its presence progressive focal neurologic signs of a super-imposed clot, the indications for dehydration or drainage, or both, are present when generalized symptoms of pressure without focal signs are

present. The finding of bloody spinal fluid is usually the strongest point against surgical interference. It is impossible to remove a subarachnoid hemorrhage adequately by surgical intervention over the cerebrum (exploration or decompression). Further harm usually results, and insult is added to injury. The extra-arachnoid hemorrhage (sub-dural) may also be associated with a subarachnoid hemorrhage (bloody spinal fluid), but the two conditions are distinct and must be treated as separate entities.

Upon admission to the hospital, the patient is first treated for shock if this be present. The bleeding of the scalp, if there be any, is temporarily stanching. Heat is applied to the body—the electric cradle being the most valuable apparatus to use. From 40 to 60 c. c. of fifty per cent dextrose (being the adult dose) is given intravenously. The pulse, temperature and respirations are taken every fifteen minutes. The blood pressure is recorded every half hour. Just sufficient physiologic solution of sodium chloride is given by vein, or the dextrose is repeated as symptomatically indicated to off-set the period of shock.

Skilled nursing does much to control the patient in shock. In the stage of reaction the patient is apt to be extremely irritable, and it is important to remember that irritability is often in part produced by a full bladder or full rectum.

The history of the accident or injury is very important. It is important to obtain and record the data in detail from as reliable sources as possible, as in this way it may be ascertained at the beginning whether there is likely to be a depressed, stellate or penetrating fracture. It is also necessary from the medico-legal aspect. It is desirable to know what treatment has been administered prior to admission to the hospital, and whether there has been a previous fracture or epilepsy, or other relevant facts. If the patient is in extreme shock, the examination should be brief and without undue exposure of the body, for detailed examinations can be safely postponed. If there is bleeding from the ears or nose, speculum examinations should be done only under aseptic conditions, and not done except there be definite indications.

Immediate surgical treatment is usually necessary only for superficial hemorrhages or laceration of the scalp. The strictest asepsis should be maintained in

*Chairman's Address, Section on General Medicine, Annual Meeting, Shawnee, May 27, 1930.

all surgical procedures, all foreign material must be removed and probing for fractures done only with sterile gloves and instruments. All further surgery can wait until recovery from shock, when a more accurate diagnosis of the case can be made. Moribund patients are best left absolutely quiet.

If it is possible, the size and reaction of the pupils should be noted and disturbances of sensation and reflexes ascertained. The movements of the limbs and facial muscles should be watched for signs of paralysis or local or general convulsions.

Tetanus antitoxin should be given in all patients who present accidental open wounds—1500 units is the usual prophylactic dose. A small amount being given after which waiting five minutes for signs of anaphylaxis.

If the patient's condition warrants, the next step, is to take X-rays of the skull and a sufficient number of films should be made to give details of the nature and site of the fractures, if any be present.

For obvious reasons, every minute saved in beginning the treatment of a severe case of head injury increases the chances of survival. Too often, an hour is lost in waiting for an unnecessary roentgenogram while the patient's shock and intracranial pressure go unattended. The patient will survive or succumb independent of the fractured skull, so early X-ray pictures are unnecessary. Rarely has a patient ever died of a fractured skull. He dies because of hemorrhage, brain destruction or intracranial pressure.

Hypertonic solutions do not have any appreciable beneficial effect upon hemorrhage or lacerations, but do seem to clear up edema temporarily. Give the hypertonic fluids intravenously—saturated salt solution 33 per cent, or 50 per cent glucose solution. Of the salt solution, one uses up to 60 c.c. at the rate of 1 to 2 c.c. per minute; of the glucose solution, 20 to 40 c.c. at about the same rate or a little faster. The same dehydration may be accomplished by giving magnesium sulphate by mouth or per rectum. The objection to the oral administration is that frequently these patients, because of nausea and vomiting, are unable to retain the magnesium sulphate. Sachs of St. Louis, gives 50 per cent magnesium sulphate per rectum every three to four hours, making the patient retain it at least fifteen minutes, a good procedure if it can be done.

Lumbar puncture, according to Sachs, is generally used, both for treatment and as a diagnostic method in head injuries. He does not approve of or employ lumbar puncture in such cases either for purposes of diagnosis or treatment, as he has seen the same thing happen after lumbar puncture in head injuries that has happened so frequently from lumbar puncture in brain tumor cases—sudden death. The question of the danger of spinal puncture is one that should be freely discussed and made clear to the patient's relatives and it should be rightly understood by the physician. There is real danger in doing a spinal puncture in fracture cases, because they may die immediately or they may die after a few hours as the cerebellum gradually sinks down on the medulla, but this does not necessarily mean it is, sometimes, not a valuable procedure. It calls for the most discriminating judgment of the medical attendant.

According to Fay of Philadelphia, lumbar puncture is routine whether or not there has been a period of unconsciousness lasting more than a few minutes.

Lumbar puncture, according to McClure and Crawford, is considered one of the most reliable gauges of intracranial pressure and is done in cases, not in shock, where the diagnosis is uncertain, or where there are signs of cerebral compression. Lumbar puncture should be done slowly with someone constantly watching the pulse, respirations, and blood pressure and stop upon the appearance of any unfavorable signs.

The changes in the ocular fundi are accurate guides in the majority of cases as to the degree of brain compression in acute head injuries; but usually do not occur until six or twelve hours after the injury.

Any injury to the head sufficient to produce unconsciousness for a measurable period of time is grave enough to demand bed confinement for several weeks. The contused brain recovers slowly from its injury and if demands are made upon it too soon after trauma, there is likely to result chronic brain disease and its concomitant disability. The patient should be kept quiet and not permitted to resume his occupation for a sufficient length of time to assure complete recovery. By so doing the right conditions for repair of the injured brain are provided and the risk of developing distress and debilitating sequelae is decreased. A patient should

not return to work for at least a period of three months and better six months. It should not be forgotten that only nature herself employing her chief agent—rest—can accomplish repair in head injury cases. No doubt our duty should be this: to give the brain absolute rest; to rely on natural reaction, and nature's power to repair the injury or disturbance.

It should be the endeavor to make even more accurate diagnosis of acute head injuries, and use the appropriate form of treatment for each different group. In this way we can save more lives and still further prevent unfavorable complications and sequelae.

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THE RELATION OF THE EYE AND EAR TO INTRACRANIAL PATHOLOGY*

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For decades the general surgeon has been relying on the ophthalmologist to tell him when head injury cases have developed enough intracranial pressure to make a decompression necessary.

If the oculist looks only for a choked disc, it is seldom visible within 48 hours of the brain contusion, and often the patient has gone through the stage of tolerated pressure and is in a stage of collapse before the choked disc appears. The oculist should then know the signs and symptoms of brain injury and pressure and correlate them with the eye findings in early intracranial pressure, if he is to perform his best service.

Following an injury with an interval of consciousness of varying length, impaired cerebation, headache, slow pulse, increased blood pressure and inequality with contraction of the pupils shows general pressure, but the beginning homonymous hemianopsia may be the only clue

to a bleeding middle meningeal, and may also be the only clue as to which side is bleeding, since the injury may be contralateral. An impairment in the color field, a slight haziness in the edge of the nerve head, a change in vein-artery ratio to 4 to 2 instead of 3 to 2 may make the diagnosis certain hours ahead of a choked disc.

A patient presents himself with an acute suppurating frontal sinusitis, the usual methods of obtaining drainage have been used and have not been sufficient; the process has gone on until there is definite osteomyelitis with the dangers present of meningitis, sinus thrombosis, septicemia and brain abscess.

Is the general surgeon, with his limited knowledge of the frontal sinus anatomy better able to operate this frontal sinus and an adjoining frontal lobe abscess, than the rhinologist who could follow the diseased bone through the front and back wall of the sinus and evacuate the adjacent abscess through the radical frontal field. As a matter of fact the general surgeon operating through a clean temporal field must drain the abscess backward through clean brain and clean meninges and is surely doomed to failure unless the rhinologist removes the necrotic frontal bone which is feeding the abscess.

You are familiar with the temporal abscess of otitic origin—is it better surgery to drain this through a clean temporal flap or through the infected mastoid wound after this last has been thoroughly operated?

This depends a great deal on how deep the abscess lies. If it is adjacent to the meninges, it will be noted by signs of meningeal irritation and some fever; whereas a deep abscess may have subnormal temperature and no signs of meningeal irritation. If adjacent then it undoubtedly should be drained through the mastoid wound, if deep then there is some question, since in searching for the abscess one may carry infection from the dirty field into clean brain; on the other hand, if drained through a clean temporal flap one must drain pus through clean brain and through meninges that are not adherent to the pia, thus increasing the chance of meningitis.

Suppose a hemorrhagic mastoiditis follows the blood vessels of the Haversian system through Troutman's triangle into the anterior cerebellar hemisphere. An abscess in this region would be impossible

*Chairman's Address, Eye, Ear, Nose and Throat Section, Annual Meeting, Shawnee, May 26, 27, 28, 1930.

for a general surgeon to reach through a cerebellar decompression without infecting the cisterna magna. The otologist, however, uncovers the knee of the lateral sinus, and the edge of the horizontal canal on the floor of the antrum and then Troutman's triangle and the road on into the cerebellum is easily found.

Now the otolaryngologist is to operate the brain abscess and cysts arising from infections in his own special field, and is to help the general surgeon in the diagnosis of the complications arising in their head injury cases, he must certainly and necessarily learn considerable about brain function.

Why then should he not avail himself of the opportunity to be of further service in the diagnosis of brain lesions of any sort, a field in which he should be peculiarly apt. If one knows the ramifications of the visual tract from the eye to the Calcarine fissure; and the auditory and vestibular nerves from the ear up through the pons and across to the opposite temporal lobe; one can hardly imagine a lesion of sufficient size to cause symptoms, not leaving a focal sign somewhere along these criss-crossing tracts.

Some of the diagnostic axioms of brain pathology not usually found in text books are: In right handed people, the silent areas are the right temporal and both frontal lobes; frontal lobe lesions impair the mentality but not the appetite, whereas in occipital lobe lesions the patient is perfectly rational but emaciated. A person normally left handed, barring birth injury, is so because the left eye is the better, therefore if this person has aphasia his lesion is right temporal, instead of left temporal, and only a skilled oculist who could detect the amblyopic right eye would be able to make this diagnosis.

I do not intend in this paper to go into all the reasoning involved in the locating of brain lesions, but merely to show that the oculist and aurist is peculiarly fitted to do this work, and while one may not care to do general neurological surgery, the physician who does not make the best use of his special knowledge and ability within his field, is selling his birth right for a mess of pottage.

ACUTE TRAUMATIC ABDOMEN FROM NON-PENETRATING TRAUMA*

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Your essayist has had the fortune or rather misfortune of encountering several cases of acute traumatic abdomen in the course of his industrial practice. In reviewing the literature available on the subject I was surprised to find how little had been written on the subject within the past few years. It is somewhat surprising in view of the increased number of automobiles, increased industrial activity, and like factors that enter into the production of such injuries only one recent comprehensive article was found.¹

There are few situations in surgery that call for keener judgment than acute abdominal injuries. The old adage, "When in doubt, operate," is too crude to be adhered to in our more modern and scientific methods of interpreting the actual condition existing in the abdomen. I feel that there has been too many abdomens unnecessarily opened and too many lives sacrificed on account of this view and often to much lapse of time before operation; that it is high time to call a halt. Let us seriously consider what really constitutes the positive indications for exploratory laparotomy following trauma to the abdomen. The literature is pretty well replete with case records where the abdomen had been opened and little or no lesion found, and in some cases where the laparotomies were performed in the presence of other injuries and hastened death by being untimely performed.

Experience has shown that the abdominal viscera, having the proportionate greatest density and the most inelastic capsule is the one most apt to be injured. Of course, the size and position of these organs are also factors involved. For this reason, the liver is the one most commonly injured. There is some difference of opinion in the literature concerning the mechanism of liver injuries. Some think that they are generally due to forceful bending of the organ upon itself; others to a torsion produced; your writer believes that the liver may also be ruptured by simply lateral compression or a direct blow of sufficient force to dent and rup-

*Chairman's Address, Section on Surgery, Annual Meeting, Shawnee, May, 26-28, 1930.

ture the capsule. Any one of these methods may rupture the liver. The important point is not so much how the accident occurred but whether it was of sufficient violence to so damage the viscera or demand open surgical intervention. According to Geill² ruptures of the liver occur in 59.9 per cent of all injuries to the abdominal viscera. His collection is perhaps the largest and most accurate, but Podobedowa³ found the liver injured in only 14.8 per cent in his collection. Time and space does not permit detailing the mechanism of the various liver injuries. Most of the lesions occur on the concave surface, but any portion of the surface of the liver may be involved and it behooves a surgeon to make a careful search as he may overlook a lesion where more than one is present.

The spleen is ruptured in 33 per cent. While the spleen is much smaller and much better protected in its position than the liver, the per cent of injuries to the spleen is high, ranking next in numbers to injuries of the liver. This is accounted for only from the fact that it is easy to rupture, bleeds very profusely when injured, and causes more disturbance in proportion to the size of the injury than the liver. Injuries to the spleen are usually caused by such severe violence that other injuries are also present. As a rule injuries of the spleen require surgical repair or splenectomy, but all ruptures of the spleen do not demand laparotomy and it is in such instances that surgical judgment must be extremely exacting.

The kidneys are injured in 21.5 per cent of all visceral injuries. Here we are dealing with two organs. My personal experience has been that injuries of the kidneys often produce late symptoms; that is, the symptoms were slow in manifesting themselves. I believe, however, this fact has been coincident to the cases that happened to come under my care.

The pancreas is rarely injured by trauma. Statistics differ in per cent from 1.2 per cent to 4.4 per cent. The pancreas is perhaps the best protected viscera against injury; located as it is and surrounded by other structures and composed of lobules separated by tough, loose connecting tissues. The usual injury is a transverse rupture of varying degree from a small rent to a complete separation. Unless the rupture is severe the pancreas does not produce the profound symptoms in comparison to injuries of the spleen or similar injuries to other organs.

Courboles (4) found that pancreatic ruptures may produce no immediate symptoms but gives rise later to post-traumatic cysts. His cases were all followed by post-operative fistulas. Wildegans⁵ successfully sutured a complete separation of a head of the pancreas from its body. The operative mortality on pancreatic injuries, however, is extremely high, varying from 72 per cent to 100 per cent.

Injuries to the hollow viscera demand surgical repair. The exception to this being severe shock or other body injuries of such a nature that a laparotomy would only hasten the death. Fortunately the hollow viscera are less frequently injured than the glandular viscera on account of their elasticity and mobility.

The mesentary comes in for its share of injuries which usually gives rise to severe hemorrhage and grave shock. The leaking of a hollow viscera into the peritoneal cavity usually gives rise to severe pain. It is invariably followed by localized peritonitis, the severity of which depends on the organ or organs ruptured.

Presented with a case with a history of a blow to the abdomen or some sudden violence and the patient found to be suffering from abdominal pains, rigidity of abdominal muscles, and shock, let us consider what these symptoms mean.

Perhaps the most striking symptom is the shock of the patient. If the shock is so intense that it cannot be partly overcome or sufficiently overcome to permit a laparotomy, then the condition is hopeless and an operation only adds insult to injury. Under shock is grouped the patient's pulse, temperature, blood pressure, and consciousness.

The production of pain has already been mentioned. This varies greatly with different individuals. Lenander⁶ points out that "pain is not felt in the viscera but is referred to somatic tissue supplied by segments of the cord which supply the viscera involved." Ross and Hurst⁷, however, believe that viscera disease or injuries may be accompanied by referred somatic pain, but viscera themselves are also capable of feeling pain. I would place pain as second only to shock in importance of symptoms. The localization of pain is highly important. A general abdominal pain means much less than localized pain.

Abdominal rigidity will always hold its place of importance as a symptom. Villiger⁷ states that "Within recent years, evi-

dence has been brought forward showing that sympathetic fibers also run to voluntary muscle fibers. This may produce a double innervation of each voluntary muscle fiber. Or according to John Hunter, only a fraction of all the fibers of a voluntary muscle receive a sympathetic innervation. This is an important subject, which is still undecided." It is possible that injury to the somatic nerves themselves may set up a reflex muscle spasm by virtue of these putative sympathetic muscle fibers acting through the complicated system of collaterals to produce a result similar to that obtained by direct stimulation of the sympathetic ganglia. As abdominal rigidity may be produced from various lesions, either thoracic or extra peritoneal, its importance is not so great. Abdominal distension or abdominal collapse, signs of abdominal fluid, all have their bearing on completing a diagnosis.

The following cases will help to illustrate what should and should not be done in such injuries.

Case No. I.—ADC. 4-18-18. Male, age 35. While working in a planing mill was struck on the anterior abdominal wall, to the left, by a 1x4 board. He was knocked down but not rendered unconscious. He arose and continued his work for 30 minutes when he collapsed and was brought into the hospital. He was in profound shock, suffering intensely, abdomen rigid and distended. He was given morphine and atropine, 500 c.c. solution of saline under the skin. The abdomen was opened about two hours after injury. No intra-abdominal lesion was found. Careful exploration showed a bulging on the post peritoneal wall. This was incised and a large hematoma evacuated. The left kidney was found to be split in a horizontal plane about two-thirds of its body. This was sutured, controlling the hemorrhage, the incision closed and the patient made an uneventful recovery. The point of importance in this case was the fact that the man collapsed after he had returned to his work 30 minutes following the injury. There was no doubt but that he needed immediate surgery.

Case No. II.—Harry C. Male, age 45. Was struck in abdomen by axe handle caught in a belt and fly-wheel. He was immediately disabled, had profound shock, a great deal of abdominal tenderness, vomiting and dyspnoea. He was first seen by me ten days following his injury. He had been treated by the use

of hot abdominal packs and morphine. On examination, pulse was 100; temperature, 100; respiration, 24. There was no particular area of tenderness of the abdomen. The abdomen was slightly distended. The heart and lungs were normal. The urine was normal. Total white blood cells, 19,200; a differential of 90 per cent polys. The abdomen was opened under local anesthesia and explored under gas anesthesia. On opening the peritoneum, a flow of serosanguineous fluid poured out. There was some flakes of exudate. The bowel wall was dark red, but not thrombotic. The appearance approached a bluishness in places. There were some newly villimentous adhesions but no pockets of pus. No rupture or tear of any of the viscera was found. The abdomen was closed with drainage. The patient made an uneventful recovery except for thrombophlebitis of the left leg which developed in about twelve days. This later disappeared.

Case No. III.—CEV. Male, age 32. On March 14, 1922, was struck in the abdomen by a large stone. Brought to the hospital in an ambulance, a distance of 15 miles. On examination the abdomen was rigid, the patient in moderate degree of shock, pulse moderate, but very weak. Temperature 97. Patient pale. Blood pressure 100 systolic and 60 diastolic. Pain intense and abdomen acutely tender. Pain was not localized. There was no abdominal distention. On admittance to hospital he was given morphine sulphate grains one-fourth, atropine 1-150 hypodermically. Four hours following the accident the rigidity continued. Patient anxious, pallor had disappeared, temperature 99 1-2, pulse 90. The abdomen was opened. A careful search failed to find any intra-abdominal lesion except a few areas of ecchymosis on the anterior peritoneum. The abdomen was closed and the patient made an uneventful recovery. This man should not have been operated but at that time we were following the old adage, "When in doubt, operate" much to our regret.

Case No. IV.—BHW. Male, age 52. Oil field worker. On June 6, 1927, a drilling machine fell, falling across his lower abdomen. Was seen by me in an oil field camp hospital 60 miles from Tulsa ten hours after the injury. Temperature, 97; pulse, 40; and respiration, 26. The man showed extreme shock. There was marked pain in the hip and pelvis and was passing blood from the bladder. Unable to obtain X-rays and the patient was in too ex-

treme condition to be moved. Diagnosis was a fracture of the pelvis with probable perforation or rupture of the bladder. A retention catheter was placed and measures instituted to overcome shock. It was considered inadvisable to transport him, but he was given a blood transfusion and other measures to combat shock. He did not respond satisfactorily to the blood transfusion and his condition became gradually worse and he died four days following his injury. Post-mortem examination later revealed that the left ilium had been crushed and the pubic bone and the entire hip had been rotated inward and forward. In this case I doubt it would have been possible to save him had he been operated.

Case No. V—O. L. Male, age 22. On August 18, 1927, a clutch lever struck him in the abdomen. He was brought to St. John's Hospital the same day. Patient showed moderate degree of shock. Abdomen very tender to touch, but not localized. When admitted to hospital his temperature was 98; pulse, 80; respiration, 20. At 8 p. m., his temperature was 101.4; pulse, 90; and respiration, 22. His blood count was 19,600 total whites, 85 per cent polys, 80 per cent hemoglobin. Urine normal. At 10 p. m., temperature 100; pulse, 100, respiration, 26. At 6 a. m., temperature, 98; pulse, 90; respiration, 22. He had been treated by morphine and ice packs to abdomen only. He ran a slight fever for three days in the afternoons only and left the hospital on the ninth day, fully recovered to return to work. This was a case where one was sorely tempted to do a laparotomy but subsequent events showed it was wholly unnecessary.

Case No VI—J. H. L. Male, age 2½ years. September 30, 1927, an automobile was backing when it knocked down and ran over this boy. Was immediately brought to St. John's Hospital. Patient on arrival at hospital was in considerable shock and extreme dyspnoea and semi-conscious. The abdomen was distended and apparently very tender over the entire abdomen. There were no external marks on the abdomen. There were some abrasions on the cheek and lower extremities. Patient was put in hot bed and given morphine grains 1-25 and atropine, grains 1-750. Pulse at that time was 110, temperature not recorded. He was given hypodermoclysis. One hour later, pulse 126; temperature, 101. Three hours later con-

dition much improved. Eight hours later temperature, 99; pulse, 100; respiration, 30. resting. Gradually improved and dismissed 96 hours after admittance. Total white cells were 14,800. Urine negative.

Case No. VII—Male, age 50. Admitted to Morningside Hospital on March 7, 1928, 36 hours after injury. While driving automobile he skidded into side of bridge, striking left side of the chest and abdomen against the side of his car. He drove his car 125 miles into Tulsa. He felt a little ill during that night and the next day did not call a doctor until 2 a. m. on March 7. The abdomen was quite painful, markedly distended, dyspnoea. The clinical picture was that of an intestinal obstruction, although there was marked local tenderness in the left axillary line at the eighth rib. On admittance to hospital his temperature was 97; pulse, 90; and respiration, 22. He was given morphine for pain and hypodermoclysis of hypertonic saline. By 8 a. m., he was improved and was taken to the X-ray where it was found he had a fracture of his left eighth rib. His temperature and pulse remained normal until noon. Very suddenly his pulse shot up to above 160. Patient showed marked pallor, became semi-conscious and evidently had an intra-abdominal hemorrhage, presumably from the spleen. The left flank was dull and tender. He was given intravenous saline until a donor could be secured for a blood transfusion. He was transfused at 2 o'clock and hypodermoclysis continued that afternoon. He had a stormy period for a few days and then rather quickly improved. Following his hemorrhage, his red blood cells were three million; hemoglobin, 54 per cent; total white cells, 15,300; and 80 per cent polys. The urine was negative. On 14th, his hemoglobin was 74 per cent; total white cells, 9700; and polys, 59 per cent. He was dismissed on the 23rd. No surgery but transfusion had been performed.

Summary: (1) The abdomen can withstand severe trauma that does not demand surgical intervention, except for hemorrhage or a rupture of a hollow viscera. (2) If operation is done it should be done between 3 to 6 hours following the accident, in the majority of cases. Hemorrhage is the most alarming feature. (3) In our more modern methods we should be able to say more definitely when and when not to operate and not adhere to the old adage, "When in doubt, operate."

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JAMAICA GINGER MULTIPLE NEURITIS*

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The harmful effect of alcoholic beverages upon the human organism is of such ancient pathological significance that it would seem nothing new could be added to clinical manifestations of such cases. Yet suddenly a startling number of men, practically all of whom give a definite history of drinking an alcoholic beverage, presented themselves to us with a set of symptoms somewhat foreign to any clinical entity heretofore attributed to alcoholism. This beverage in all of our cases where thorough investigation has been made was labeled Jamaica Ginger.

ORIGIN OF THE DISEASE

It is a rather interesting story as to how we traced this condition to its source and discovered its cause. The first case was admitted to the Reconstruction Hospital on February 27, 1930, as an industrial injury. His history was that two days after he strained himself lifting a car, while at work, he began to feel numbness and tingling in the calves of his legs. Following that, he gradually developed flail feet and came in for treatment of his condition.

Neurological examination revealed:

1. Steppage gait.
2. Positive Rhomberg.
3. Absent Achilles reflexes.
4. Bilateral foot drop.
5. Diminished vibratory sensation in each leg.
6. Absent vibratory sense perception in toes.
7. Marked tenderness of the affected motor nerves.
8. Pain, temperature and tactile perception not altered.

CLINICAL PICTURE

The clinical picture, therefore, was that of a multiple neuritis with only deep proprioceptive sensory involvement, paraesthesia and flaccid paralysis.

It resembled, markedly, cases of multiple neuritis due to lead poisoning. The blood picture and gastro-intestinal features of lead poisoning were absent as well as a history of lead exposure. Analysis of the spinal fluid was negative.

EPIDEMIC FORM

That very day, four other cases of like character were seen in which the lower motor neuron involvement and vibratory sense perception were all affected in a like manner. One of these was a druggist who dispensed Jamaica Ginger to customers and who had taken a few drinks himself about ten days prior to the onset of paralysis. He described the symptoms as coming on gradually as a paraesthesia and a breaking down of the arches, and weakness of the ankles.

Another patient, a podiatrist, had taken the trouble to secure a list of sixty-five people similarly and simultaneously affected and all residing within the same geographical area in the city.

Doctor Miles, the City Health Supervisor, was advised of our experience. Together we contacted some of these patients in their homes. In each and every one of them, exactly the same clinical findings were present as set forth above. In all, more than thirty cases were seen on that day by Doctor Miles and myself. All gave a history of drinking Jamaica Ginger, seven to sixteen days previous to the onset of the paraesthesia.

JAMAICA GINGER CAUSE

As our investigations became publicly known through the medium of the newspapers, numerous cases were reported to the Health authorities and private physicians. These were all suffering from paralysis and paraesthesia of the lower extremities. More than ninety-five per cent of them had taken Jamaica Ginger approximately seven to fourteen days prior to the onset of the trouble. The amount of liquor taken in most cases was small in quantity.

The afflicted individuals had secured their Jamaica Ginger principally from one of several drug stores located within an area of six square blocks. In these drug stores, a number of employees and one or

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two of the proprietors or managers were sufferers of this poison liquor paralysis.

MULTIPLE NEURITIS

The assumption of the existence of an outbreak of toxic multiple neuritis due to ingestion of poison liquor was inescapable when the following conditions were all taken into consideration:

1. Sudden large number of cases, 99 per cent or more being men.
2. No children affected.
3. Cases within a circumscribed boot-legging area.
4. Attempt to keep it quiet.
5. Negative blood and spinal fluids.

Some of the patients later developed involvement of the upper extremities showing the true character and course of a toxic multiple neuritis.

Attempts to definitely isolate the toxic substance have thus far been unsuccessful. Lead was suspected but not credited as a causative factor due to lack of concomitant symptoms of lead poisoning. The picture was more of an alcoholic neuritis in that the lower extremities were first affected. Yet the marked sensory features were absent which are usually seen in alcoholic neuritides.

Whatever the poisonous substance was that the Jamaica Ginger contained, it had apparently a selective affinity for the deep motor nerves which carry few pain, temperature and tactile sensory fibers but do carry deep proprioceptive fibers to the joints, tendons and muscles. That explains the atypical sensory anaesthesia in these patients and bears out the work of Head who demonstrated that proprioceptive sense fibers run more commonly with the deep motor nerves.

Faradic response of the muscles was lost early. Galvanic response of the muscles was present but quantitatively and qualitatively altered.

AUTOPSY FINDINGS

An autopsy made by Dr. Hugh T. Jeter on a case that had this form of paralysis prior to his death, death not being due to this condition, revealed the following in respect to the spinal cord and the peripheral nerves—this being an extract verbatim from Doctor Jeter's report:

CORD

"Sections of the medulla and serial sections of the entire cord approximately one inch apart, show slight edema, thickening of the meninges and apparently slight dilation of the blood vessels in some areas. Otherwise, no important changes.

PERIPHERAL NERVES

"A section of the cauda equina shows a perineural exudate composed largely of lymphocytes, many of which are large, a few scattered polymorphonuclear leukocytes, many red cells, and a slight amount of fibrin. There is no definite thickening or important visible change of the endoneurium but the blood vessels within the funiculus are dilated and engorged with red cells. None of the sections show evidence of any definite degenerative change in the nerve fibres.

Diagnosis: Acute Perineuritis.

ANTERIOR TIBIAL NERVE

"Numerous sections were made, all of which, showed very great thickening of the perineurium everywhere. Only one section showed exudate which was considerably less extensive than that found in the cauda equina.

"The one constant feature of sections from all portions of the central nervous system, is the thickening or fibrosis of interstitial structures particularly the meninges of the brain and cord and the perineurium of the peripheral nerves."

Dr. L. A. Turley, Professor of Pathology, State of Oklahoma School of Medicine, in further work done on this autopsy material has demonstrated what would seem to be degenerative changes in the anterior horn cells of the spinal cord. This shows that the condition is a neuronitis rather than simply an affection of the peripheral axone fibre alone.

PROGNOSIS

The outlook for complete recovery is uncertain. The period of invalidism will approximate nine to twelve months or more.

CONSTITUTIONAL

Treatment being given is that of stimulation of the emunctories and strychnine by mouth in fairly large doses. From the orthopedic standpoint, the paralysed tendons should be placed at rest. Most cases refuse this treatment, however, and continue to walk with feet unsupported. Drop foot braces may be applied. A drop foot splint should be used at night. A cock-up splint should be used for the hand or wrist.

Galvanism and gentle massage and medical gymnastics are indicated in the latter stages.

NEURO-PATHOLOGY FOUND IN CASES WITH "JAKE" PARALYSIS

L. A. TURLEY, M.D.

Head of Department of Pathology, School of Medicine, University of Oklahoma
OKLAHOMA CITY

Case 1—Male, white, age 68, laborer. Had been heavy consumer of alcohol all his life. No history of venereal disease. No Wassermann. Developed a well marked case of "Jake" paralysis following debauch on "Jake". Came into hospital with cough and lung symptoms premonitory of pneumonia, and general malaise. Rales in bases of both lungs. Blood pressure impossible because of arteriosclerosis.

On about the third day after entering the hospital he developed stertorous breathing and other symptoms of brain pathology. He died about forty eight hours later.

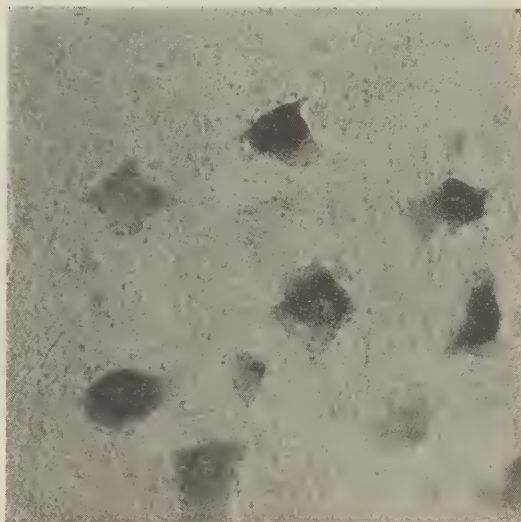
Autopsy showed generalized arteriosclerosis. Some pulmonitis but no definite pneumonia. Liver somewhat retracted, slightly nodular, dark mottled. Kidneys not remarkable. Brain described as waterlogged. (I did not see the patient nor the autopsy). Spinal cord and sciatic nerve no gross pathology. Cause of death, cerebral edema.

Microscopic sections of the organs showed nothing remarkable. First examination of the material from the nervous system was made by Dr. H. G. Jeter. Sections were run by the routine histological cellular exvudate in some of the fibers of

the cauda equina as the only pathology found. On this basis he made a diagnosis of perineuritis.

Material was sent to this laboratory on request of Doctor Bowden of the State Board of Health. This material was run through special neurological methods using Sudan IV-Hematoxylin, Toluidin blue, and Osmic acid stains.

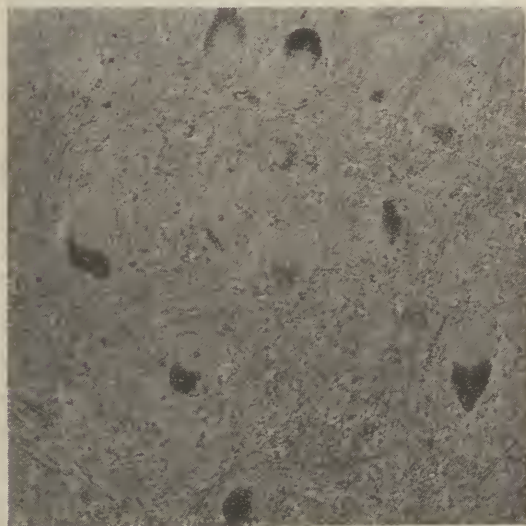
Sudan IV-Hematoxylin. Lower lumbar cord. (1) Brownish red granules packed



2. Lumbar cord, Toluidin blue.

Showing trigonoid bodies and absence of same in marginal areas.

in marginal area in all nerve cells of the anterior horns. Some similar brownish granules in some cells of dorsal horns. (2) Karyolysis, either breaking up of nu-



1. Lumbar cord, Marchi stain

Showing fat granules in nerve cells.

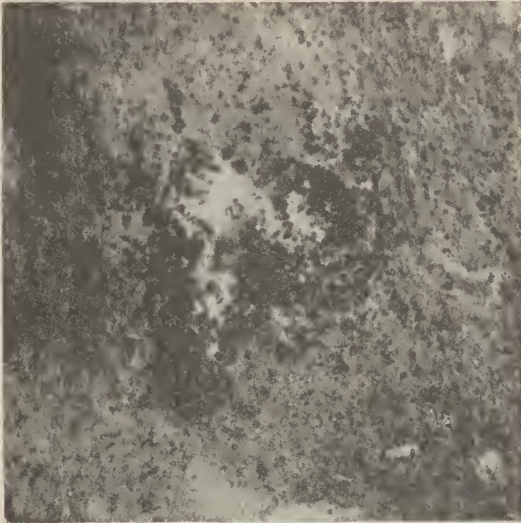


3. Thoracic cord, Clark's column.

Sudan IV. shows complete karyolysis in one cell and fat granules in margin of both cells.

cleolus, condensation of karyosomes, or complete lysis of karyotin material with disappearance of nucleolus; (3) migration of the nucleus in many cells.

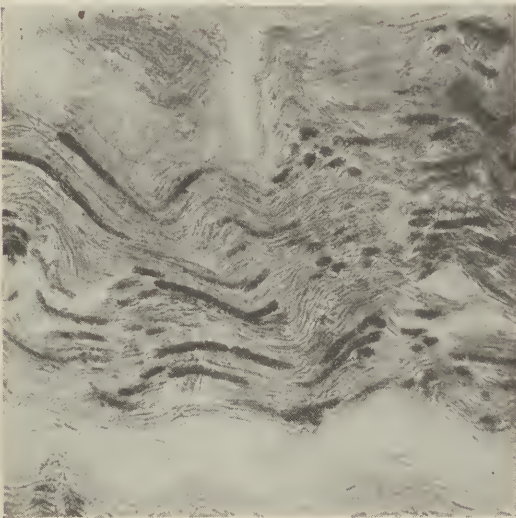
Edema and lymphocytic exudate around the neural canal, desquamation of neural canal epithelium.



4. Edema and exudation around neural canal.

Toluidin blue stain shows presence of trigoid bodies—but with frayed margins—in all cells containing a nucleus in good condition, except in regions of the cell occupied by granular material described above.

This type of pathological condition of nerve cells was also found in the upper thoracic, lower cervical cord; medulla in-



5. Sciatic nerve, Marchi stain.
Fatty degeneration (black) of nerve fibers.

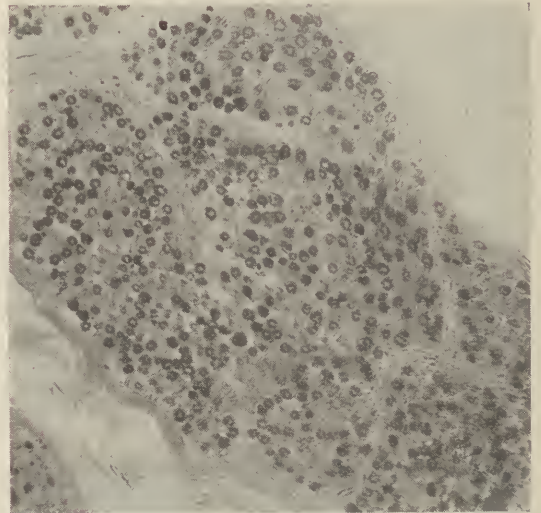
cluding the inferior olive, nuclei of the floor of the fourth ventricle at this level: and the dentate nucleus.

Osmic acid—Mueller stain of material from the same regions revealed black granules in all places where Sudan IV had showed brownish red granules.

Marchi stain of the sciatic nerve showed: (a) in cross section, some fibers in every fascicle which stained black; (b) in longitudinal section, some fibers were all black, others showed black masses at the nodes of Ranvier, or scattered along in the internodal spaces.

The exudation around the neural canal was found at all levels of the cord examined, but not in the region of the fourth ventricle.

Case II—Male, white, age about 70. Always used alcohol. No history of venereal disease. No Wassermann. "Jake" paraly-



6. Cross section of sciatic nerve Marchi stain.
Fatty degeneration (black) of nerve fibers.

sis or locomotor ataxia. Came into the hospital in semi-comatose condition. Died after short stay in hospital. Diagnosis possible uremia.

Autopsy revealed aneurism of ascending aorta, atheromatous aorta and, arteriosclerosis, pulmonary edema, cardiac dilatation, infarcts of lung and kidneys, chronic nephritis. Complete central nervous system removed together with sciatic, anterior tibial, part of brachial plexus, and radial nerves.

No gross pathology in nervous material except probable swelling of anterior tibial nerve.

Nerve material run by the special staining methods used in Case I, showed identical pathology of nerve cells and nerve fibers as in Case I.

All we are saying at present is, that the above described pathology was found in material from the nervous system of patients with well marked and typical "Jake" paralysis.

It has occurred to us that if the pathology is due to "Jake", and it has, as in Case I, reached the vital centers, the symptoms and death could be due to the pathology described above. The symptoms would be those involving the failure of the vital centers. And death from "Jake" is possible.

We are continuing investigations, experimentally and clinically, and examining the central nervous system from all "Jake" cases possible.

THE HEALING OF THE PEOPLE*

C. M. ROSSER, M.D., F.A.C.S.
DALLAS, TEXAS

Past President Texas State Medical Association,
and Professor of Surgery, Baylor University

Mr. Chairman, Ladies and Gentlemen:

I feel greatly honored because of the honor which has again been mine, in being permitted to be your invited guest. Three times in recent years have I been your guest, twice before on similar occasions, and I was pleased to accept each time and am pleased to be here tonight, I realize the responsibility, speaking as I do before the medical profession of Oklahoma as a representative of the profession of my state, and therefore, standing without myself, I enjoy the opportunity, but the responsibility is great.

I have a great theme, concerning which I shall make some remarks. It is an old, old theme, coming through the memories of the past, through many ages—the healing of the people. It is a fine thing to be a member of such a profession. The medical profession is unique in many respects. It is in this respect unique that its appeal is universal; it is in this respect, that its obligations are essential. Hardly any other profession of life can claim to be both of those. Why do I say the appeal is universal? Because no human being can assert truthfully that

he is independent of the services which the medical profession must render. At the bedside of that sacred night or morning when, for the first time, the infant eyes undertake to see something of the future, the doctor is there; then, when that last sad day comes, as come it must to every one, the day of death, the doctor is there to close the eyelids and say words of comfort to the bereaved. The appeal is universal all through life, from that early beginning to that tender hour. Reflect a moment and you will remember that as you rise in the scale of civilization dependence upon others is greater. The ant is born today and tomorrow is independent. The little pig roots for his own living after a very few days. The infant child is the most helpless of all God's creatures of the animal kingdom at the moment of birth, before independence comes, and the truth is it comes not at all. There is an inter-dependence concerning human life, human activities, and the thing we call social order, that must be observed and it must be realized if the social order is to be maintained. There is no such thing as independence. There never was a more untrue statement that all men are created free and equal. Tradition is greatly in error.

Created free? Free from what? Equal in what respect. No two things are exactly equal. The report of two guns may sound equal to you, but one grain of powder, more or less, or a little shift of the wind, and they are not equal at all. Men are not born free; they are not born equal. Free from what? Certainly not free from dependence from the day of birth until life is closed at the journey's end. Liberty we do not have at all except that which is given us. No man has an inherent right. There is justice which he desires and justice which he deserves, but it is only meted out to him by those with whom he cooperates. Such liberty as we have is given to us. A member of society loses liberty the day he enters it, and he enters it in a civilized world when he is born.

We talk about the Golden Rule. I respected it as infallible until I thought about it. "Do unto others as you would have others do unto you." Why do that? Why adopt that as a rule unless you are sure that your own desires concerning others be theirs? I knew a man who was tired of living, who wanted to separate from the game (and I sometimes wonder

*Guest Address, 18th Annual Session, Oklahoma State Medical Association, Shawnee, May 27, 1930.

if a man hasn't a right to withdraw from the game), and he wanted somebody to kill him. Had he meant to do to others as he desired that others should do to him he would have been arrested right away.

Many traditions are in error, greatly in error. Geologists may be in some doubt as to where we came from; theologians may differ as to where we are going to, but there is one universal fact: that we are here, that others are here. We have certain proprieties, certain duties, certain prospects and certain possibilities.

The medical profession steps in to take care of some of these. A great profession, a profession of ideals that it follows every day. It is not the only profession that has ideals, but it has a different ideal from any other profession, and it is one of which we can be exceedingly proud. This ideal is that it shall make life more comfortable, make the possibility of man more hopeful, and that suffering shall be lessened and the short span of life shall be lengthened. What greater, finer, nobler ideal can any man have?

Along with that come other responsibilities, and a serious minded man as he finds himself a part of the great profession accepts them and knows what he is going to do about it. "He who knows the best he can and does the best he knows does well, acts nobly; angels can do no more." Take away that first line and the entire structure falls. We must *know* the best we can.

From the darker ages, as time runs backward, the medical profession from crude beginnings came to where we are today. It suffered the limitations which other enterprises and institutions suffered. It had to progress perhaps more painfully than some of those. At one time there was no medical profession. Men found themselves adapted to the care of their neighbors when they were ill. They found themselves temperamentally qualified and seeking advantages which would make them efficient. They became medical men in time, and as one became proficient in the community others would come to remain with him and learn something of his scientific success, and scientific success, if even undeveloped, if true, is right. And then an economic idea inspired some who wanted to teach others, and little schools for such study were established, and little by little the medical college came, and all over the country, in the memory of some of us now living, there were medical schools,

doing the best they could under the circumstances, making men better than they would be as physicians if too crude in their qualifications and therefore crude in the qualities which they represented.

Did the people themselves demand that the medical profession should progress? Not at all. From within came the urge and from within the effort. The public at large has not even welcomed with proper appreciation much that the profession has done through great labor. That is sad, but it is so. Better medical schools were wanted not by the people but as a demand due to the ideal that the best services should be rendered. It was a resultant necessary privilege, and one of general appeal. The privately owned college disappeared and those under the control of great universities took their places. They were disseminated not upon the demand of the people but because the profession wanted to be conscientious in its responsible business of making people well who were sick; rendering those who were injured less likely to be deformed; those who tended toward immature deaths granted further length of life.

A man may declare himself a doctor like I laid by my father's crop once. My father was an itinerant minister and went every month to different towns, but the crop had to be laid by. I recall once he said: "Lay by this crop and you can go hunting and fishing with the boys." It was awfully hot, one June day, plowing through the field of corn; the corn was quite large, the wind quite still, the horse perspiring and I doing worse. I wanted very much to carry out my father's wishes and I had to lay by the corn. I went upon the side of the hill, led the horse to one side, tied him to the fence, climbed upon a tall stump, and, waving my hand I said: "I pronounce all this side of the branch laid by." No safe medical adviser can be made by self declaration.

It was insisted upon that some one should supervise the profession and we had district boards. The district boards were appointed by district judges about like this: first, they would appoint some doctor who had helped to elect the judge, and then they would appoint another doctor he thought would be willing to help him in future elections.

I had a wonderful experience. I had been off taking a short course of lectures and came home a little early because my money gave out. The examinations were oral, and I remember one question that I

thought was very interesting. The doctor said to one young man, "What is rabies and what would you do for them." The young man scratched his head and said: "Rabies are Jewish priests, I wouldn't do a dam thing for him." I think it was the wrong answer. A little boy went to school one day and while at school the teacher said: "Billy, how much is a million dollars?" He said "I don't know." The teacher said, "Your father is a banker, when you go home ask him." That night little Billy said, "Papa, how much is a million dollars?" His father was reading the paper and didn't pay much attention to the question but he answered: "A hell of a lot of money." Billy came home crying the next day and his father asked him, "What is the matter?" and Billy said, "Papa, you gave me the wrong answer."

But the wrong answer doesn't matter so much provided somewhere there is a conscientious member in the profession who makes a better answer. And better medical schools now provide the way by which a man who has the ambition to follow the practice of medicine as a life work is not denied his opportunity, if he will only rise and only remain and be faithful to his work.

The medical profession has sought itself to raise its own standards. There was no demand that there should be better academic requirements in medical schools except such as came from professional schools. I did not hear any requests or suggestions, even, and you have not heard any, from either the lay press or the public to the effect that doctors should be better educated before undertaking the study of medicine. The demand came from the inside, the work was done there, and the public has not, as a political entity, appreciated what the profession has done.

I think in your State your legislators have been shortsighted and have not given the public the protection it ought to have in recognition of the sacrifices of the profession and the idealism for which the medical profession has fought. We have not yet had any throwback of medical progress for our profession in Texas, and I am not expecting it ever, and certainly not during the lifetime of some of us. We still have the crime of quackery with us, but quackery is still a crime, and the state has not entered into league with those who violate the principles of humanity and honesty in this regard. We have not licensed men because they continued to

violate the law. More men have left Texas among the illegal professions because of the falling off of the patronage of the people than have left us at the behest of the law. No longer does the man who refused to abide the decision of the law and the court have the cordial respect of the community.

There was a time when uneducated men, not scientifically educated, who undertook to treat the sick without having had the preliminary preparation, were respected in their communities. They were permitted to sing in church choirs, they were allowed membership on church boards, they were allowed to have membership in country clubs in thoroughly respectable communities. That is not so very frequently now.

The word "chiro" was mentioned a little while ago. I do not desire to spend my life disturbing anybody, but I have given some effort to educating the people in order that the people of my State may know the difference between the scientific doctor and the unsafe practitioner. I do not believe that a thoroughly self-respecting citizen of my community would be seen as a companion of a violator of the medical practice any more than he would want his wife to be in the society of a social outcast. I do not know why you let the law be adopted here to give untrained practitioners a separate board, I don't know whether the profession was represented or whether your legislators would not hear, or—it might have been like the negro who got to be a deacon in the Baptist Church. He was met one morning by a friend who said, "Jake, I understand you are a deacon in the church now." "I sure is," said Jake. "When did you get religion?" "I ain't got no religion," answered Jake. "Is you quit stealing chickens, or shootin' craps?" asked his friend. "No sir, I aint quit nothin'." "You must have paid the preacher pretty well." "I didn't pay him a dern cent." "Then how come you was made deacon?" said Jake's friend. "I don't know how come," said Jake, "except I guess the rough element must have riz up and demanded representation." That is what must have happened here.

The public mind must take hold of the great ideal, it must know that the medical profession belongs to the great army of those who work for human progress; and those who deny the truth of science must be relegated not to the insane, not neces-

sarily to the insane, but to the ranks of ignorance, the unsafe, the unqualified, and the unthinkable preyers upon the public good.

I don't know what program you have adopted in this State. I know our program is to continue a relentless warfare upon the hazzard which that class of men throw about. But all the time we shall not forget that we have a great duty to perform; we shall not forget that progress is progress by change and that changes must come, and we shall adapt ourselves to them. We will reorganize our teaching, therefore that the study shall be modern. We will build better hospitals, and there again the demand comes, not from the public, but from the medical profession. It does not mean at all that only the standardized hospitals present good work but because there is classification, all hospitals that are fine are doing better work than they would be doing, striving first toward the excellent and then the perfect, all for the benefit of the people the profession serves, as well as the good conscience and welfare and success of the profession itself.

In the splendid talks already made this evening reference has been made to the manner in which the profession has progressed. We have ahead of us still a large program, but it is easier to progress from where we are than to go from where we were fifty years ago.

As we strive forward we do not forget the patriots of the past. I should not permit this opportunity to go by without paying some tribute to the old time physician. I see him now, going without thought of his own comfort, going without care concerning his pay, going where he is needed. There comes to my mind that grand old doctor of the early day, the family doctor.

We take up his burdens and we carry them on, a pleasing performance of duty, an essential duty, one universally demanded from the beginning to the end. We take up his work but do it differently. We have the telephone and the automobile and the office and the hospital, and now rather than going to see our patients they come to us, and, out of respect for the high cost of living, we charge them \$5.00 instead of \$2.00. I tried once to use the telephone for night relief while in general practice. I recall a lady who called me and said: "Doctor, my little fellow has diphtheria." I said, "Maybe it is croup." She said for me to come out and see him.

I said, "Put him up to the phone and let him cough and I think I will know what it is." She put him up. I told her it was croup and what to do for the child. I went out the next morning to see the baby and found it doing well in the care of another doctor.

I am afraid we are losing the common touch. I am afraid we are only medical men and not men of medicine. I got a terrible jolt one night when a Jewish lady phoned me. She said, "Doctor Rosser, I have at my house a lady who is very ill; she has a bad pain in her stomach and wants you to come out right away." I said, "Do you mean the pain is in the upper or lower stomach?" She said, "I don't mean belly, I mean in the stomach." I said, "You give her an enema and phone me in about an hour." "Now," she said, "Doctor Rosser, come out to see her right away. What she needs is a doctor in the house and not an enema over the telephone." I don't think we ought to lose personal touch with our people.

It has been said that faith is half the battle in the sick room, but what good is faith doing if a blood vessel is cut and bleeding? The blood vessel should be tied. It is a grace to have a personality which can inspire faith, and it is a good part of one's equipment but you must not have your patient dependent upon faith alone. Do not rely upon faith when you are selecting a doctor. Do not select a doctor because of the cut of his whiskers nor the colors of his necktie nor because he has a good warm handshake. That is misleading. Equipment in the way of knowledge, equipment in the way of judgment, equipment in the way of conscience; then all the faith you care to have. Such faith is justified.

The medical profession is unique again, in this: That it is the only profession that gives practical application to the sacrifice of human life. There are certain hazards which men must undergo or commerce would cease. Every lawyer's success means another lawyer's failure, but every doctor's success ought to be a glory to the men who are working side by side.

Whether in the hut of the poor or in the mansion where men of millions live, the duty of the doctor is ever the same—life must be saved. It is assumed we must do all we can, first knowing all we can, undertaking no responsibility for which we are unprepared, and then giving our best, each hour, each day, and all the time.

A TEN MINUTE TRIBUTE TO FLORENCE NIGHTINGALE*

J. BERRY KING

ATTORNEY GENERAL OF OKLAHOMA

In these times of expert hospitalization, exact medical science and modern sanitation, let us pause in our ascending flight of efficiency for a few short moments to pay tribute to Florence Nightingale.

It is her birthday. One hundred and ten years ago she was born in the little Tuscan City for which she was named.

Children of our present day schools are taught that Florence Nightingale was perhaps the greatest heroine of modern civilization. She has been called the founder of the Red Cross, the mother of modern nursing, the angel of the Crimean War, a saint, a saviour.

It is quite true that during the ninety years of her life she was a torch bearer, songster and healing nurse as genuine as was ever Miriam to the wandering Israelites.

The ordinary man alternatively freighted with misery or expectant with hope has only to review history to realize that now and again there is born a person extraordinary, one whose singleness of purpose is so fixed that it seems he or she is conceived through God and destined by fate. Such a person was Miss Nightingale, whose very name sounded in tune with her career. Early in life she recognized her talents and destiny dedicated her to a divine mission.

Though born in Italy, she was returned with her parents and sister soon thereafter to Derbyshire, England, where her girlhood was spent at Lea Hurst. Her father, William Shore Nightingale, was a wealthy land owner and a country gentleman of the old style, known as "Squire". Both parents were cultured and refined and she was reared in the lap of luxury and affluence.

She may well be termed "Florence, the Child of Fortune." All the avenues to social eminence and personal prominence were open to her in her girlhood. As she grew to womanhood her character expanded in a normal way. She dressed in style, entered society, took up the popular sports, went to parties and dances and apparently enjoyed them. As time went

by, in accordance with the custom of her station, she went to London and was presented to the Queen. She had many friends and admirers. She could converse freely with the wits and courtiers of all the courts of Europe, but with it all she was different. At a very early age she demonstrated that God had called her to specific service and she became obsessed with an insatiable longing to bring cheer, comfort, relief and health to a sick and suffering world.

It is written of her that as a child she possessed a large family of dolls. One day when she was entertaining them at a garden party on her father's estate, her dog seized one in his teeth and scurried away for a romp with it. Florence rescued the doll a few minutes later. Sawdust was pouring out of a large rip in the side. She did not stop to mourn the mishap, nor did she throw the tattered playmate away and ask indulgent parents for another to fill its place. She stuffed fresh sawdust into the doll until it was as plump as ever and then bound a handkerchief neatly over the hole, and thereafter this doll from all the large family was her favorite.

Squire Nightingale and the mother of our heroine were people of singularly broad and sympathetic minds. Riding over the downs one day the father noticed a peculiar flower blossoming among the woods. He dismounted with the girl to examine it. He pronounced it a species very rare in Derbyshire and suggested that Florence transplant it to her own garden. This she did and by careful tending soon had a bed of the strange plants growing near the manor house. From this incident and others like it, the young girl developed a curious interest in all kinds of plants that were having a hard time to live. In her garden at home she had raised peonies, pansies, forget-me-nots and roses in profusion. These were easily grown and they flowered as beautifully as the girl could desire, but one day her father saw her straying out into the meadow and followed her. She stopped by a bunch of lowly cowslips and began to dig up the weeds that choked their growth. Then she found a marigold that been bruised by the wheel of a passing cart. This she re-set in a safe place farther from the road. Finally she uprooted a wild lily plant, wrapped it in paper and set off for home with it. The Squire saw that his daughter was a born gardener, but of a peculiar stamp. Her concern was not in the garden so much, as in the flowers that needed a garden's pro-

*Delivered over Station KVOO, Tulsa, Okla., on National Hospitalization Day, May 12, 1930.

tection. That trait pleased the Squire and he did everything to foster it.

The same trait revealed itself in the child's care of animals. She had her squirrels, of course, her pony and her dog, and never tired of playing with them, but her keenest interest in these was awakened when they met with an accident. At least one might infer as much from one incident. Riding home with her father they passed a herd of sheep in wild commotion. The old shepherd, Roger, could do nothing to control them. "What is the matter, Roger," called the father, "where is your dog." "The boys have been throwing stones at him," replied the shepherd. "They have broken his leg and he will never be good for anything again. I shall have to take a bit of cord and put an end to his misery." "Oh", cried Florence, who overheard the story, "Poor Cap, are you sure his leg is broken?" "Yes, Miss, it's broke sure enough. He hasn't set foot to the ground since and none can't go nigh him. Best put him out of his pains I says." But the child knew Cap, knew how intelligent and useful he was, and she was unwilling to think of his dying. Riding on they stopped at the cottage where the dog lay. Florence petting the cringing beast, anxiously inquired if the leg was broken. Finding no bones broken she quickly thought that what poor Cap needed was care and nursing. Immediately there flashed in her mind the suggestion of a hot compress. A fire was lighted, a kettle put over, but no cloth was to be found until looking about the room Florence saw the shepherd's extra smock hanging on the wall. "This will do," she cried, "Mama will give him another." So she tore the smock into strips and bathed the dog's limb until the inflammation was gone. The injury healed and the dog served his master many a year thereafter. But that was by no means the main result of the incident. It for the first time disclosed to the girl's own splendid imaginative mind the true trend of her natural propensities and capacities. From that moment on she determined to follow them.

Living in the midst of a middle class, and a still poorer class, Florence cultivated the habit of bearing gifts of food, clothes and medicines, relieving the suffering of her neighbors. She ministered to these with such growing intelligence that she was nothing less than an unpaid country doctor. At seventeen she conducted a Bible class at Lea Hurst for the girls

employed in the hosiery mills. In short, with all her education and social success she could not forget the dependent people around her childhood home, and whatever might be her amusement it was her earnest vocation to make the lives of those people easier and brighter. From her neighborhood she progressed to the slums of London, where the coarsest of nurses and inadequate hospital facilities abounded. Here she gathered further inspiration to progress along the line of sanitary achievement and the alleviation of human suffering.

Nursing in those days was largely in the hands of a coarse type of woman not only untrained but callous in feeling and often of low character. The feeling then prevailed that it required nothing but a disappointment in love, the want of an object, a general disgust, or incapacity for other things to turn a woman into a good nurse. And therein and thereby Florence Nightingale pursued the route of all the sick misery of England, and she then and there determined to see what could be done to reform the hospitals. She was about twenty-one years of age when she definitely settled upon this course. Her decision required courage. Nursing was a base profession not much above that of barmaid, and Florence Nightingale was a lady born and a lady bred. She had to have the confidence that she could preserve herself from contamination while she elevated the profession. And it was a prodigious undertaking, but she was not without inspiring examples. She laid her case before Elizabeth Fry who had renovated the prisons of Europe and was of course encouraged to go ahead. Many of England's important men and women were her friends. As early as 1851, before she had really won her immortal distinction in the Crimean War, Lord Bryon's sister wrote of her this prophetic verse:

"I saw her paused to think;
She moves as one, whom on to gaze
With calm and holy thoughts that link
The soul to God in prayer and praise.
She walks as if on Heaven's brink
Unscathed this life's entangled maze
In future years, in distant climes,
Should War's dread strife its victims claim,
Should pestilence, unchecked betimes,
Strike more than sword, than cannon maim,
He who then reads these truthful rhymes
Will trace her progress to undying fame."

Most of her study in England and on the continent was with the Catholic Sisters. Miss Nightingale well knew, however, that they and their system could never be transferred to Protestant Eng-

land. If she were to produce nurses in England they must be Protestant nurses. Hence, when she discovered a solitary deaconess hospital at Kaiserwerth on the Rhine, she attached herself to it for serious study. From Germany she came home and after twelve years her preparation was finished. A hospital for poor, broken-down governesses in London was in straits. In this crisis she was called to be superintendent of the Harley Street Home. Probably here was forced upon the young woman the real test of her life. Heretofore she had been a student, now she was to face realities. Florence Nightingale was willing. She took up residence on Harley Street among the swarm of ailing and dependent women when she might have been attending balls at Buckingham Palace. She toiled so hard at Harley Street that she herself fell ill and forced to retire for a rest. It was there while still pondering the problems of her quiet London task that she was suddenly summoned to another task as spectacular and momentous as had ever been thrown into the hands of a woman.

The Crimean War was in progress. France and England being allied to defend Turkey against Russian aggression.

The British army had sailed to a strange climate with shamefully poor commissary and medical staffs. The weather was stormy and the soldiers had little shelter against it. Here she won the real distinction of her life's career in renovating conditions and developing the first real hospitalization methods war has ever produced. From a death ratio of seventy per cent when she arrived there, through her efforts it was reduced to two per cent.

So patriotic was her work and so successful was she in this crisis that the world has accorded her the true place she now holds in its history. She used not only her intelligent mind but sacrificed her own body to the extent that she became ill and dangerously near death's door while stricken there with fever. The affection in which she was held by the soldiers of this war was perhaps best expressed in a quotation from a soldier's letter written to his people, wherein he said:

"She would touch one, speak to one, and nod to another, and her smile was for all, but she could not do everything to everyone, you know, for we lay there by hundreds, but we could kiss her shadow as it fell and lay our heads on our pillows again content."

This incident inspired Longfellow to write:

"And slow as in a dream of bliss, the speechless sufferer turns to kiss her shadow as it falls upon the darkening walls."

Returning to England in 1856, she continued in hospital development, inspiring nursing, and particularly addressed her attention to India. The successful advance of nursing may largely be attributed to her wonderful vision. "Nursing", she said, "is an art, and if it is to be made an art requires as exclusive a devotion as any painter's or sculptor's work. For what is the having to do with dead canvas or cold marble compared with having to do with the living body, the temple of God's spirit."

On August 13, 1910, she fell asleep at noon and did not wake again. The offer of burial in Westminster Abby was declined, for she had left directions that her burial should be of the simplest. The coffin was carried by six sergeants of the Guard. She was buried beside her father and mother in the little country churchyard near Embly, and on their monument was put the inscription she wished, the letters, "F. N.", and the dates of birth and death.

Florence Nightingale's life was her work. Her ashes rest in proud England's soil. Her soul is safe within God's heavenly garden. Her spirit of sanitation is in the sunrise of every modern hospital. Her spirit of comfort and good cheer is reflected in the sweet smile and tender touch of every adorable nurse who has been blessed by her teachings and inspired by her vision. God bless the memory of Florence Nightingale. She will never be forgotten by a grateful civilization.

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DO YOU KNOW YOUR PAP-SPOONS

This year, Mead Johnson & Company's exhibit at Detroit will feature a unique exhibit of historical interest to every physician who has a baby or who feeds babies.

Through the courtesy of Dr. T. G. H. Drake of the University of Toronto, there will be an exhibit of ancient feeding spoons, jugs, boats and nursing bottles, some of which date back to 500 B. C., gathered from various parts of the world.

At the Detroit Session of the A. M. A., June 23-27, please do not fail to inspect this fascinating historical collection, never before exhibited. Booths 292, 293 and 294.



EDMUND S. FERGUSON, M.D.
OKLAHOMA CITY
President Oklahoma State Medical Association
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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

THE SHAWNEE MEETING

Without exception every man attending the Shawnee meeting was gratified at the huge success of that session. It is doubtful if any town in the State, with the population of Shawnee, is so admirably situated as that city to care for a medical or other convention. More than 530 physicians registered as attendants and considering that the meeting was held not in Oklahoma City or Tulsa, which cities have large populations, but one with a few more than 24,000 people, the attendance could not be excelled or probably equalled in any state.

We had 1612 members when the meeting opened so it is evident that the ratio of attendance was very high. This was brought about by the fact that the city is centrally located and easily accessible from Oklahoma City and Tulsa as well as being easily accessible for many other fairly large little cities.

The Shawnee profession dropped their private affairs for three days and with their wives and friends made it a point to see that everything moved smoothly. The picnic dinner, reception and dance of the President, held the last night of the meeting, was attended by more than 250 people and those physicians who hold gastronomy as being one of the high arts and sciences of life will not soon forget the ample dinner served on that occasion.

The two general scientific sessions held Tuesday and Wednesday drew record breaking attendance. The orthopedic clinics, the moving pictures and the talks by Doctors Jackson, Teachenor, Hayden, Albee and Sistrunk, held the close attention of those attending the meetings. The orations delivered by Doctors Fite, McHenry and Griffin were also closely noted and given enthusiastic applause.

The three sections were well attended and the work of putting through their programs was accomplished with the minimum of friction. A full report of the transaction of the House of Delegates is published in this issue. The attention of all our members is especially called to the various resolutions adopted by the House. Some of the resolutions are of extreme importance to the profession and people of Oklahoma, but to make their recommendation effective the directing hand of an intelligent physician must at all times be at the helm.

It is our prediction that Shawnee will not have trouble in entertaining the Annual Session at any time hereafter.

"MEMBERS" AND "FELLOWS" OF THE AMERICAN MEDICAL ASSOCIATION

There has always been some confusion as to the difference in the status of *Members* and *Fellows* of the American Medical Association. To attempt to clarify the matter it is believed well to state the difference in these two.

All members of State Medical Associations officially reported to the American

Medical Association as such, are *members* of that organization. These *members* are not required to pay any dues or otherwise contribute to the support of the American Medical Association.

All *members* of the Association in good standing are eligible for *Fellowship*, but to qualify as a *Fellow*, a member is required to make formal application and to subscribe to the Journal. Fellowship dues and subscription to the Journal are included in the one annual payment of \$7.00, which is also the regular subscription price of the Journal.

Where, for any reason, a physician does not wish to take the Journal of the American Medical Association, the Association publishes several other high class periodicals, such as the Archives of Internal Medicine, Archives of Surgery, etc., and these may be substituted for the Journal if it is desired, by payment of the rates charged.

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MULTIPLE ALCOHOLIC NEURITIS

"In a city like Boston, where the weather was so variable, the best precaution against epidemics and chills was to drink strong liquors. Rum played a large part in the life of the eighteenth century Bostonian, especially since Boston manufactured rum for all the southern colonies and the English West Indies. Rum was also sold in good measure on the spot. Of course, there were all kinds of qualities; the clients of North Carolina even claimed one year that Boston rum gave them 'dry belly-ache with a loss of the use of their limbs. This was very likely, but at least, you got your money's worth.'"

The above was the observation of conditions as experienced in the colonies 213 years ago and which indicates that even then the gentlemen noted for the manufacture of wooden nut megs were not averse to making easy money by the use of adulterants in alcoholics.

The quotation is from Bernard Fay's "Franklin, The Apostle of Modern Times," and indicates that there is nothing new in alcoholic neuritis or what the boys call today, jakeitis. However, there is considerable doubt as to whether the present outbreak in Oklahoma, Kansas, and Kentucky and other points, is not something more than solely due to alcoholism and there are many who strongly believe that the condition brought about is

due to some poisonous ingredient generated in the improper manufacture of the alcohol used to concoct the Jamaica ginger.

The writer recalls that drinking of Jamaica ginger was a common practice in the Indian Territory, thirty or forty years ago and it never produced any type of neuritis and it was drunk in enormous quantities, and was to be found in practically every household as a home remedy.

As to pathology, the reader is referred to reports of two autopsys, the earliest so far known made in this country, where death was believed due to the drinking of poisoned Jamaica ginger. The report is made by Professor L. A. Turley, head of Pathology, Medical Department of the University of Oklahoma. There is also a comprehensive report of the condition of some cases by Dr. E. Goldfain, which will be found in this issue. As to treatment, Bennett¹ has not been able to observe improvement so far, as to paralysis. Some of the cases are even becoming worse under treatment. Harris² strongly urges total abstinence from alcohol, admitting, however, that the condition is not typical of the alcoholic neuritis ordinarily seen. Nicotine, arsenicals, caffeine, etc., should be strictly avoided. Complete rest in the acute stage is advised, after which massage and passive motion is to be instituted. These measures being increased slightly each day. To prevent contractures of the hands, and foot drop, which is liable to occur, "cock-up" splints or rubber balls placed in the palm should be used and appliances to maintain the feet at right angles to the plane of the legs should be used.

It seems to be the general opinion that probably neither alcohol or the ginger concerned in the drink is responsible for the condition, though it has been termed "jakeitis" by many writers, as well as alcoholic neuritis, etc. While the question is not yet settled the general belief among the medical profession is, that the condition is probably due to some poison either introduced into a cheap grade of alcohol or generated in the manufacture of the alcohol from which the Jamaica ginger is made.

1. Bennett, C. R., "Patients Suffering from Paralysis Due to Drinking Jamaica Ginger." Southern Medical Journal, May, 1930.
2. Harris, Seale, "Jamaica Ginger Paralysis" (A Peripheral Polyneuritis). Southern Medical Journal, May, 1930.

MEMORIAL ON THE DEATH OF DR. ANTONIO D. YOUNG

At eleven o'clock, Tuesday morning, June 3, 1930, with the world's work in full swing, the State of Oklahoma suffered a distinct loss through the death of one of its most useful citizens. Removed from the turmoil of traffic, on a shaded street in the upper chamber of his quiet home. Dr. Antonio D. Young died, as he had lived, with commendable courage and composure.

Here was a man who loved his fellow men and though he lived well within the plane of their comprehension he was set apart as the kindly physician. While highly trained and peculiarly skilled in his chosen speciality he never lost sight of the fact that sick people need a physician with a practical knowledge of the human body, who is willing to sit at the bedside and bring to bear a sympathetic, intelligent application of this knowledge to the patient's individual needs.

Dr. Young possessed a radiant personality; to look into his eyes; to receive his genial smile; to hear his voice and shake his hand was enough to send one joyfully on his daily round of duties.

Though by no means a recluse he avoided fame, always insisting upon remaining on his accustomed level, where with simplicity and gentleness he enveloped all with his tolerant insight and sympathetic understanding, saturating his environment with the most delicate wit and humor.

In closing this memorial we can think of nothing more appropriate than the following from Maurice Maeterlinck: "Our dead are greater and more truly alive than we are; when we forget them it is our whole future that we lose sight of; and when we fail in respect to them it is our immortal soul that we are trampling under our feet."

Dr. Young was born in Jerseyville, Illinois, December 11, 1873, and graduated from the Jerseyville High School in 1892. He graduated at Barnes Medical College, St. Louis, Mo., in 1895, and practiced medicine at Downs, Illinois, until he came to Oklahoma City, February, 1901. He was married to Elberta Meyer December 1, 1897.

Dr. Young was secretary of the faculty of the Medical Department of Epworth University which later became the Medical

Department of the Oklahoma State University. He was professor of Neurology in the latter school from the date of its organization. Dr. Young served in the World War from March, 1918, to 1919.

He was a faithful member of the Catholic church; a member of the American College of Physicians; the American Medical Association; the Southern Medical Association; the Oklahoma State and County Associations and the Oklahoma City Academy of Medicine. He was a charter member of the latter and helped write its constitution.

He was also a member of the Men's Dinner Club and was closely identified with various social and outdoor clubs.

L. J. MOORMAN,

J. T. MARTIN,

R. M. HOWARD,

Committee.

Editorial Notes—Personal and General

PAYNE COUNTY MEDICAL SOCIETY met May 16, at Cushing, with Dr. Wade Sisler, Tulsa, as the speaker of the evening. He addressed the group on "Fractures."

DR. L. J. MOORMAN, Oklahoma City, was elected a member of the executive committee of the National Tuberculosis Association, in convention at Memphis, Tenn., May 8th.

GARFIELD COUNTY MEDICAL SOCIETY held their regular meeting, May 22, at Enid. A paper by Dr. W. P. Neilson, "Rational Development of Medicine" and one by Dr. Paul R. Champlin, "Pancreatic Fistula with Spontaneous Healing," were given. Discussion followed both papers.

DR. DIVONIS WORTEN, Pawhuska, left May 10, for New York, from which place he sailed to Europe. He will study with the Interstate Post Graduate Medical Association of North America in Berlin, Prague, Vienna, Rome, Naples and Florence, returning to the United States about August 1.

OKMULGEE-OKFUSKEE COUNTY MEDICAL SOCIETIES met at Okemah, May 19th, for their regular meeting. Dinner was served at 6:30 P. M., followed by the program: "Appendicitis in Children" by Dr. Marvin E. Stout and "Chorea, Chronic Cardiac and Rheumatic Conditions", by Dr. John Roddy, both of Oklahoma City.

DOCTOR JAMES HENRY McCULLOCH

Dr. J. H. McCulloch died May 28, in Tulsa, following a month's illness and complications arising from an attack of influenza.

Doctor McCulloch was born at Monticello, Arkansas, October 27, 1868, obtaining his preliminary education in Hendrix College, from which he graduated in 1894. He afterwards attended the University of Louisville, graduating March 28, 1902. Doctor McCulloch practiced in Checotah for 28 years. He was an unusually good and close student of medicine, and was very familiar with infectious and contagious diseases and delighted in discussing these with and before county medical societies.

His death is a distinct loss to the profession of eastern Oklahoma. He is survived by his widow, three sisters and two brothers.

Interment was made at Checotah under the direction of the Methodist church.

WHEREAS, It has pleased the creator of all men to take from our midst Dr. Antonio D. Young of Oklahoma City; and

WHEREAS, He was a faithful member of the State Medical Association for many years typifying the highest professional ideals, and

WHEREAS, He faithfully served his profession as professor of Neurology in the Medical Department of the State University.

BE IT RESOLVED, That we, the members of the State Medical Association deplore his untimely death and as a token of our respect request that a copy of these resolutions be printed in The Journal of the State Medical Association and that a copy be forwarded to his bereaved family.

L. J. MOORMAN,
J. T. MARTIN,
R. M. HOWARD,
Committee.

RESOLUTIONS UNANIMOUSLY ADOPTED BY THE FACULTY OF THE MEDICAL DEPARTMENT OF THE UNIVERSITY OF OKLAHOMA ON THE DEATH OF DR. ANTONIO D. YOUNG

WHEREAS, We, the faculty of the University of Oklahoma, Department of Medicine, have been deprived of a valued, esteemed and earnest co-worker, we feel it our duty to mourn and sympathize with those who have been so close to him and realize more than we do, the kindness and close bond by which they were united to him.

We of the committee, who have worked with him and have been close to him for

many years, likewise, realize his sympathy and kindness and appreciate intensely the loss of one who has been an intimate part of our daily work and lives.

He was always considerate of those about him, conservative in his opinions and statements, tolerant of opinions of others and in the words of Emerson, who expressed most beautifully the following: "There is something in the man finer than anything he said—a power to make his talent trusted."

He was a loved husband, father and friend to all who knew him and called upon him for help. There is no more fitting tribute to Dr. Young than "He added to the sum of happiness; and were all to whom he had done some loving kindness, to bring a blossom, he would tonight be covered with a wilderness of flowers."

WM. TAYLOR,
C. J. FISHMAN,
R. M. HOWARD,
Committee.

TRANSACTIONS OF THE THIRTY-EIGHTH ANNUAL SESSION
OKLAHOMA STATE MEDICAL
ASSOCIATION, SHAWNEE,
MAY 26, 27, 28, 1930

General Meeting.

The Council.

House of Delegates.

Joint Scientific Meetings, May 27, 1930.

Joint Scientific Meetings, May 28, 1930.

GENERAL MEETING

Tuesday, May 27, 1930, 8:15 P. M.

Dr. Robert M. Anderson, Shawnee, General Chairman, presiding,

The Invocation was rendered by Dr. R. M. C. Hill, McCloud, followed by music.

An Address of Welcome by Dr. J. A. Walker, Shawnee, was responded to by Dr. A. S. Risser of Blackwell.

The following guests were introduced:

Dr. Charles R. Hume, Ex-President of the Oklahoma State Medical Association, Anadarko.

Dr. Austin A. Hayden, executive attending oto-laryngologist, St. Joseph's Hospital; Treasurer, American Medical Association, Chicago.

Dr. Fred H. Albee, New York.

After the introduction of the guests Dr. W. Albert Cook, Tulsa, delivered a short address upon the death of Dr. Claude T.

Hendershot of Tulsa, concluding by introducing President, Dr. E. S. Ferguson, Oklahoma City.

Mister Chairman, Members of the Oklahoma State Medical Association, Ladies and Gentlemen:

During the past year we have been confronted with a situation which has never existed but once before during the life of our organization; that is, by having lost our President by death during his incumbency of office. I probably knew Dr. Hendershot as well as any of you, as he located in Tulsa about twenty-six years ago, just at the time I commenced limiting my practice, and Dr. Hendershot being a young man, keen and alert, with a pleasant personality, acquired many of the families that I had previously administered to while doing general practice. He was an active worker in medical circles and was the first secretary of the Tulsa County Medical Society, and for several years had been councillor of our district, besides occupying the position of president of the State Association at the time of his death, he was president of the Tulsa County Society.

About five years ago, Dr. Hendershot's health began to fail and he underwent an operation, which put him on his feet again, but he had suffered for sometime with high blood pressure, and being a man who enjoyed the good things of this life and a man who never took any outdoor exercise, he took on considerable weight, with the accompanying increase of blood pressure and on September 11, 1929, he was stricken with a cerebral hemorrhage about noon and taken to the hospital and passed away that night without ever regaining consciousness.

Out of respect for our deceased President, you will all please stand and bow your heads in a moment of silent prayer.

In one respect our loss has terminated in a gain, as it became the duty of the president-elect to assume the toga of the presidency. Dr. Ferguson, whom you all know personally or by reputation, came to Oklahoma City from Canada about the time Dr. Hendershot came to Tulsa and has been identified with the profession and medical societies ever since. Dr. Ferguson occupies the Chair of Ophthalmology at the State University and is chairman of the Ophthalmological Staff of the University Hospital and is one of the outstanding men among the eye, ear, nose

and throat specialists of the Southwest and is a man who has the respect and confidence of all of his patients, friends and acquaintances and we are fortunate, indeed, to have such a man direct our destinies for the coming year.

It gives me great pleasure to introduce to you our new president, Dr. Edmond S. Ferguson.

(See Dr. Ferguson's address, first article, this issue.)

Dr. C. M. Rosser, Dallas, Texas, delivered an address. (See second article, this issue).

THE COUNCIL

The Council met at 8:00 p. m., May 26, 1930, with the following present: Doctors Ferguson, Lile, Willour, McGregor, Gallaher, Ambrister, Adams, Fulton, Thompson.

Prior to this meeting a Committee on Resolutions and a Committee on Auditing had been appointed. The following doctors composed the Resolutions Committee: Drs. L. J. Moorman, Oklahoma City; McClain Rogers, Clinton; S. E. Mitchell, Muskogee.

The Auditing and Budget Committee: Drs. Frank H. McGregor, Mangum; J. C. Ambrister, Chickasha; L. S. Willour, McAlester.

The Auditing Committee having previously conferred with the Auditor, reported that the books of the Secretary-Treasurer-Editor had been inspected and found correct according to the report (This report was made and published in the May issue of the Journal.)

Dr. L. S. Willour discussed a proposition that the State Medical Association purchase a certain number of films, after viewing and if found satisfactory, and that approximately \$750.00 be added to the budget for the years 1930-31 for that purpose, if necessary. A motion to that effect and announced to provide the appointment of a committee to select the films made. The motion carried. The president appointed Drs. Willour, Adams and Fulton.

Dr. Fulton moved that the State Medical Association appropriate \$250.00 toward the expenses of all Annual Sessions hereafter. The motion carried.

After discussion, the Council recommended that the House of Delegates instruct the Sections to select their chairman and secretaries upon the first day of the meeting of the Scientific Sections.

Dr. Willour moved that the following budget be made:

| | |
|--|-------------|
| Printing Journal, Office supplies and printing | \$ 7,000.00 |
| Office rent | 384.00 |
| Stamps, office and Journal | 315.00 |
| Treasurer's Bond | 50.00 |
| Press Clippings | 60.00 |
| Auditing | 100.00 |
| Annual Meeting expense | 250.00 |
| Council and Delegate's expense | 1,000.00 |

| | |
|---|-----------|
| Extra Clerical expense | 200.00 |
| Salary—stenographer | 1,200.00 |
| Salary—Secretary-Treasurer-Editor | 2,400.00 |
| Purchase of motion picture films | 750.00 |
| Reporters for House of Delegates and Sections | 250.00 |
| Total | 13,959.00 |

The motion carried.

The Council then adjourned.

C. A. THOMPSON,
Secretary-Treasurer-Editor.

REPORT OF THE COUNCIL TO THE HOUSE OF DELEGATES

Shawnee, Oklahoma, May 26, 1930

The Council desires to report that its Auditing and Appropriations Committee has inspected all the books of the Secretary-Treasurer-Editor, and found the report, as published, correct.

HOUSE OF DELEGATES Monday, May 26

Meeting called to order by Dr. E. S. Ferguson, president.

Roll call by Dr. C. A. Thompson, secretary.

Dr. Ferguson: "As the minutes of the last annual meeting were published in the Journal following the meeting, these will not be read at this time unless so requested. Is there a motion that the reading of the minutes be suspended?"

Motion made, seconded, unanimously carried.

Dr. Ferguson: "Is there a motion that the minutes stand approved as published?"

Dr. L. S. Willour, McAlester: "I move that the minutes stand approved as published."

Motion seconded, unanimously carried.

Report of Council Meeting by Dr. Thompson.

Motion made and seconded that report of Council Meeting be adopted, seconded, carried unanimously.

Report of Resolutions Committee by Dr. McClain Rogers:

(1) WHEREAS, The Almighty in His wisdom has taken from us our distinguished president and colleague, Dr. Claude D. Hendershot, creating an irreparable loss to our association and our profession; and

WHEREAS, Dr. Hendershot, through his untiring efforts and devotion to the upbuilding of the medical profession of Oklahoma, has rendered a great service to the people of our State and our profession:

THERE, BE IT RESOLVED: That the State Medical Association of Oklahoma, being cognizant of our great loss, that we extend condolence to his family, and that this Resolution be made of record and a copy be sent to his family.

(2) WHEREAS, the greatest hindrance to effective health work in Oklahoma is the lack of stabilized Health Department for the State and counties, resulting from political considerations in the selection of health officers and other personnel; and

WHEREAS, life-saving now made possible by science, but which requires foresight and time, cannot be carried through due to lack of continuity of health programs; and

WHEREAS, the shortcomings of our public health organizations and public health nursing facilities are largely responsible for the hesitancy of endowed health organizations in extending aid to our State for purposes of demonstration,

THEREFORE, Be It Resolved, that the House of Delegates of the Oklahoma State Medical Association record itself as favoring vitalization of that part of our Constitution referring to a Board of Health, and that such be created by the next Legislature in conformity to plans approved by authorities and health specialists, and that a non-partisan board be appointed and that civil service principles be applied to the employment of the health department personnel.

Motion made and seconded that above resolution be adopted, and unanimously carried.

(3) WHEREAS: Much misinformation is promulgated today on the question of diets, etc., causing the introduction in the American diet-food fads;

Very few of these fad foods can take the place of the older staple foods, good meat, dairy products, green vegetables, fruits and the better grades of bread prepared from white flour;

Any balanced diet should contain animal protein, fruits, vegetables, especially the leafy vegetables, which insure adequate vitamin and mineral salt content, digestible fat such as butterfat, and sufficient of the digestible carbohydrates to afford readily available energy;

Carbohydrates, including sugars and starches, but especially starches, furnish the American public their main fuel energy, the quantity varying with the amount of physical activities which the individual expends. Much of the starch should be supplied by the most available and easily digestible foodstuffs, of which white flour is an excellent example;

The allegation that white bread, meat or any other staple food, when employed in mixed diet is responsible for certain grave illnesses, is not supported by scientific facts.

THEREFORE, BE IT RESOLVED THAT We desire, in the public interest, to place on record that, in our opinion:

1. The exaggerated claims for various fad foods are entirely unwarranted by scientific evidence or practical experience; and the advertising and other propaganda furthering their substitution for the older articles of diet should be condemned.

2. The danger of nutritional deficiencies has been grossly exaggerated. No food is a perfect food, but a diet consisting of dairy products (especially milk), leafy vegetables, fruits, meats and easily digested starches for heat and energy, furnishes an excess of all food factors necessary for proper growth and nutrition and resistance to disease.

3. Any variation from normal diet should only be prescribed by a properly trained physician after careful study of the dietary requirements of the individual seeking advice.

Discussion:

Dr. Earl McBride, Oklahoma City: Regarding white flour, I do not know whether the American Milling Association offered any suggestions in that resolution or not, but I understand that the American Milling Association is offering to come in here and do the same as they have been doing in other states, that is, get back of the Medical Association in such a campaign and make public these facts. I would like to know if anything has been brought up in that connection with this resolution.

Dr. Rogers: I might state that this has had some influence on the resolution.

Dr. Willour, McAlester: I handed this resolution to the Resolution Committee, and I would like to say that it was through a man interested in the American Milling Association that I received much of this information. I was advised that should we make such a resolution the American Milling Association will come in here and make every effort in the cleaning up of food fads, and in every possible way assist the Medical Society in doing away with some of these things. They also propose to come in and assist in a material way with whatever legislation may be necessary. That was the very source from which I received that resolution and they are the originators.

Dr. McBride, Oklahoma City: I raised the question for discussion because I thought perhaps it was not generally known how the resolution might have been brought about. I believe these people are all right, and I believe we should pass the resolution and get behind the people who want to help in this action.

On motion the resolution was adopted unanimously.

WHEREAS, the statutes of Oklahoma do not specify that the superintendent of the Feeble Minded Institute, located at Enid, be a physician and as it has been the custom of several governors to appoint laymen to the superintendency:

Be it resolved that the Oklahoma State Medical Association, through its Legislative Committee, ask the legislature to amend this law so that only a well qualified and trained physician can be appointed to the superintendency of said institution.

McLAIN ROGERS,
S. E. MITCHELL,
L. J. MOORMAN.

Dr. McBride, Oklahoma City: I don't think this institution is well enough known. It has become very crowded, particularly since the development of Crippled Children's Clinics over the State. I think this a very good resolution, but the medical profession as a whole should know more about this institution and take more part in its welfare. Recently it has been so that it is almost impossible to get a patient in that hospital except the very most hopeless, and there are a thousand feeble-minded children unable to be taken care of. I think a doctor of medicine should be superintendent over it, and an investigation be made from the general standpoint of the welfare of the institution.

Dr. A. E. Aisenstadt, Picher: This resolution means well, but it seems to me that we are going at it in the wrong direction. In the first place, when you are attempting to put something through by legislation along this line you may find some opposition in the legislative body and

it would take, perhaps, a little bit of politics to get it over. If we could see the governor, put the facts before him and appeal to his sense of right that an institution of this kind should have as superintendent a doctor of medicine, he might listen to the president of the Medical Society and consider the appointment of a physician there. I believe that probably you would get much further in such a manner than to appeal to the legislature.

Dr. Thompson, Muskogee: For the benefit of Dr. McBride, the first superintendent of that institution was a doctor of medicine. I remember the struggle very well (I visited the institution several times) that he made in bringing it up. And it was well kept—he kept it so for years until some political foot-balling started and he resigned in disgust. I might also add that some libelous stories were printed in two Oklahoma papers for which \$14,000 judgment was rendered. Since that time the institution has been in the hands of laymen.

Dr. ——— (Name not given): We have a Legislative Committee that should attend to these things, and if they do not feel it expedient or best to see the governor themselves, why not organize a legislative committee over all the State with a central general legislative committee. We have a man from every county in the State legislature. Why not see your legislators. They will listen to the man at home every time, while they might not listen to a person who has no vote. I think this resolution ought to be passed.

Dr. Crawford, Bartlesville: I would like to suggest that instead of the word "physician" regarding the capacity of the superintendent of the institution, it be changed to "doctor of medicine."

Dr. Marshall, Chandler: I do not feel it right to carry this out politically. We ought to ask that a physician be appointed. He ought to be a man qualified in that special line of work. This man should have an examination in surgical service of all forms, and should show that he is particularly qualified and trained for that particular kind of work. This man should have an examination in surgical service of all forms, and should show that he is particularly qualified and trained for that particular kind of work.

Dr. Thompson, Muskogee: Most any doctor in charge would be better than a layman.

Dr. ——— (did not give name): Better try to stay out of politics.

Dr. ——— (did not give name): It is not a question of politics.

Dr. ——— (did not give name): We want men who are qualified, men who can take that and do it right, and on a scientific basis.

Dr. ——— (did not give name): I'll admit you and I could run it all right.

A motion was made that the resolution be adopted; motion seconded; carried by unanimous vote.

Dr. T. C. Sanders, Shawnee: I would like to call attention to the matter of scientific exhibits, pertaining to medicine, surgery, and things of that nature. I am going to yield the floor, with the President's permission to Dr. McBride.

Dr. McBride: I was talking to Dr. Sanders about that matter. The American Medical Asso-

ciation has an arrangement whereby those doctors who have some original research work or something of interest that they have developed and that is not commercial, that they can make application to the exhibit committee and that application is either accepted or rejected. By that method an exhibitor may place his work in the exhibit space, and there are contests in which these exhibits are judged and a trophy given the individual who presents the exhibit most worthy. Now, a number of men have attempted to exhibit some personal research work at State Medical Associations and it seems to me that State Medical Associations should appoint or have a committee to carry out some similar plan to that of the American Medical Association. I make a motion that such a committee be appointed—an exhibit committee for the purpose of receiving applications for scientific exhibits.

Dr. Ferguson: We have a committee on scientific work that might take up this question as well as having an additional committee. We can have that committee separate, or the scientific committee; however, we have that committee on scientific work.

Dr. McBride: Dr. Thompson has handled the exhibits right along, and I would like to hear from him what he thinks of the matter of scientific encouragement for research and original work, to be presented by medical schools, teachers, individuals or hospitals interested in developing medical science.

Dr. Thompson: I would like to see a scientific exhibit along the identical lines of the American Medical Association, that is original research work, new ideas or the improvement of old ones, separate, apart and distinct from what is known as the commercial exhibit. With that in mind, in the first place I would like to say that it is a sharp question as to what you would consider scientific exhibits. What others might consider scientific I might not. In the past upon occasions we have had exhibitors who exhibited what they called scientific exhibits, but as a matter of fact it was realized by practically everyone that commercialism was behind it. I think you will all bear me out in that—that some scientific exhibits are put on for the purpose of boosting somebody's game. Now, anything that is going to bring cash to the fellow who exhibits it we consider a commercial exhibit. The State University is a wonderful thing, and I feel that the one they have here is a purely scientific exhibit. Nobody can profit by that by one penny, nobody but the Medical school which belongs to all of us, and that is what I would consider a scientific exhibit. There are certain types of exhibits I can't help but consider as much commercial exhibits as scientific. If I put a face-lifting, nose-grafting, or wrinkle-removing apparatus on exhibit you know why I am doing it, I am not putting anything over. The great trouble lies in deciding what is purely scientific and rejecting what is considered commercial.

Dr. McBride: I think Dr. Thompson is exactly right, and that was my object in broaching the question. The committee should certainly be capable of passing on scientific exhibits and on commercial exhibits. There are exhibits bearing more or less evidence of commercialism, and there are others that have no commercial value. As it is now it makes a man feel that his exhibit is commercial whether it is or not. Encourage original research work and leave out the commercializing phases of the thing.

Dr. Willour, McAlester: I would make a motion that all exhibits offered to this society as scientific be passed upon by the scientific committee of this organization.

Dr. McBride: I would like to withdraw my motion in favor of Dr. Willour's and suggest that application be made to the scientific committee long enough before the meeting, 60 days or so, that the committee would have time to pass upon the exhibits.

Dr. Willour: I would be glad to include that in the motion—that these applications be made at least 60 days before the Annual meeting.

Dr. Kuhn, Oklahoma City: Scientific exhibits coming from the School of Medicine at the university should not be obliged to have the 60-day limit put upon them. I think scientific exhibits from the School of Medicine often have to be gotten up within a limited time. In the last semester everyone connected with the teaching is very busy until the finals are over, and I doubt the advisability of a 60-day limit being put upon the University.

Dr. Logan: That is quite true. It might be difficult to get up the exhibit 60 days ahead of time.

Dr. Thompson: We might state in the motion that nothing shall apply to Oklahoma University.

Dr. Ferguson: I suggest that the university apply for exhibit space, and that they be allowed to add to the exhibits up to the last moment. Every member of the House of Delegates and State Medical Association, I am sure, would like to encourage scientific work in the university. I think this is a splendid move you are about to make in encouraging scientific work in the association. Is there any further discussion of this motion?

Dr. ——— (name not given): I second the motion.

Dr. Ferguson: The motion is carried by unanimous vote.

Dr. Byrum: You have passed a resolution dealing with pure foods, and it seems to me that we should have a committee on pure foods for the purpose of cooperating with you on this.

Dr. Thompson: The president has power to appoint any committee he sees fit other than those provided for.

Dr. Ferguson: It is my opinion that this association should have a committee not only on pure foods, but on drugs, liquor, and pure foods. This committee could take the whole subject of drugs and pure foods. It is not necessary for a motion for that committee. We will be glad to have suggestions from any other members of the house of delegates on this or any other subjects that they would like to have put in the hands of special committees. While we are trying to keep these committees as few in number as possible on account of the difficulty of getting good membership, however, that is a committee that could function very nicely in this association. Is there anything further? This is a good time to get it off your chest.

Dr. L. B. Torrance, Okmulgee: I have something on my chest. A good many years ago the lawyers' profession came together somewhat under the same purposes as the American Medical Association, in other words, they founded the Bar Association. They found during the

course of their meeting that they had a good many members in their profession who were not living up to the oath which they have taken. We have the same thing in our profession. We have a great many men who are not doing as they should. In other words, we have professional abortionists, and it is my opinion that our profession must assume the responsibility. The lawyers met and appointed a man for each one of their districts so that they have a committee of twelve. These twelve investigate any charge referred to them. If we had such a committee we could clean up our profession as the lawyers have done. I offer this for you to think about.

Dr. Ferguson: Dr. Torrance has discussed a subject that we all think of a good deal. The medical examiners of the State have the power to revoke a license for causes such as Dr. Torrance mentioned. If any individual is not satisfied with their action in the matter he has the right to take it to court. It is a question of whether we could have any other body in the State which would function any better than the medical examiners.

Dr. Byrum: I want to express my approval of what has been said, and not only say that but several other things as well. The Board has had much to contend with in the last several years. The laws provide power to revoke a license, but the Board of Examiners does not have the legal authority to go out and do police duty. There is a question whether it is the best policy or not for the Board itself to institute proceedings leading to the preparation of charges. The revocation of license should come through the medical organization in the community interested, and the Board considered from the standpoint of legislative power. The Board does not have police power and does not have jurisdiction over any non-licensed doctor violating the laws of the State.

Dr. Torrance: I suggest that it be given what I am talking about. If you know of one man in the habit of producing abortions continuously and you start action against him, then half the population will say that it is being done out of jealousy. I am asking only for a little further consideration until next year.

Dr. Ferguson: I doubt whether we would get very far unless we get laws passed which conform to the constitution of the State of Oklahoma. It is a question of whether we could get any place at all without such laws.

Dr. Torrance: I suggested that it be given consideration until next year.

Dr. Ferguson: We might look up the laws to take care of the question—appoint a committee to report next year or tomorrow if they had time enough. How about the legislative committee taking this up?

Dr. Torrance: Only about half of them would do anything between now and then. If you appoint a board which I move you do, let them report to us next year.

Dr. Tolleson: I move that Dr. Torrance be granted this request and that he be allowed to think about this for a whole year.

Dr. Fulton: I second that motion. We have several laws against producing abortion and I can't see where we are going to get with our profession in this State unless we attempt to handle those fellows. If the legislature would

make an appropriation to our Medical Board, give them police power, these cases could be handled. These unfortunate things are happening all the time. They have been happening ever since we have had a medical profession, a thousand years or more. Our new men ought to be brought up not to do these disreputable things. I do not think they ought to be in our Society if they do do them.

Dr. Tolleson, Eufaula: If they can't get it done in their town they go to Dallas and have it done, and I am called in to treat them next day when their temperature goes up. You never find out who did it. Some come to this town and get it done. Wherever you get a bunch of doctors together there is going to be one fellow in the bunch who will produce abortions, and they flock to him.

Dr. H. C. Weber, Bartlesville: I will make a suggestion that would help to do away with abortion in this State. We have no coroners. Every fellow who is doing abortions has some deaths, and these deaths cannot be investigated. If in these deaths a coroner could be called in, the blame could be placed where it belongs. That is the proceeding in most states, and a procedure which I think would be of much value to this State.

Dr. Carl Pucket, Oklahoma City: It would seem to me that we ought to support Dr. Torrance's suggestion, have a committee appointed to investigate it until next year. We all know that something ought to be done about it.

Dr. ———: I second the motion that the legislative committee report on this at our annual meeting next year.

Dr. Torrance: I accept the motion. It is quite clear what we want the legislative committee to do. Lawyers now are taking out of their association members who violate their oath.

Dr. ———: I move that the legislative committee consider all these things.

Dr. ———: Just what is the motion?

Dr. ———, Okmulgee: The motion in this case was that it be referred to the legislative committee—the subject of handling abortions. Not the subject of handling lawyers but the subject of handling abortions, and that the legislative committee report on it at the Annual meeting next year. Personally, I think the suggestion of a coroner a very good one. We have recently had cases in Okmulgee along this and other lines. I know of a case where a woman poisoned three different individuals, and in each of the three individuals this was known prior to death, yet the woman went free, even though strychnine was found in the stomach examinations. There are many cases of sudden death that really belong to the coroner in this State, not only deaths due to abortions but also to other causes.

Dr. Torrance: There are many of these to be cleared up. That is why I said take a year to think it over. We need a lot of careful investigation. There are men in our profession who are doing these dirty things and getting away with them because we are trying to cover it up instead of coming out in the open and clearing it up.

Dr. Ferguson: That is what I understood you to say.

Dr. Torrance: Again I ask for a year's time to think it over.

Dr. Ferguson: The suggestion was that it be referred to the legislative committee.

Dr. Tolleson: The motion was made for the purpose of getting rid of this thing. I don't confine it to abortions nor to back-biting. Dr. Torrance wants a year to think it over, and I want to give it to him. The motion was amended that the legislative committee be appointed to carry out an investigation.

Dr. Ferguson: Dr. Torrance wants somebody to prefer charges and then not only prefer charges but see that they are preferred strong enough to get over in the courts.

Dr. Ferguson: That is the reason I made the suggestion.

Dr. ———: It is not a question of additional legislation. The legislation we already have provides certain restrictions. Dr. Torrance is applying only to our method of carrying out procedures of the legislative committee. He wants somebody to stay in there and hold the profession to the legislation.

Dr. Ferguson: Does everybody understand the motion?

Dr. C. K. Logan, Hominy: The motion was that time be granted the committee to go into this thing. The motion was amended to the effect that the legislative committee be instructed to report at our Annual meeting next year. We accepted that amendment.

Dr. Ferguson: You have heard the motion as stated by Dr. Logan—that the question be referred to the legislative committee to report back at our next year's meeting, to carry out the ideas as set forth in the discussion.

Dr. Willour: May I ask who is on the legislative committee?

Dr. Ferguson: The present legislative committee consists of Drs. Byrum, R. V. Smith, and H. C. Weber. These committees have not been appointed for next year.

Dr. Logan: I rise to a point of order. There is no motion before the house. There is an amendment.

Dr. ———: Before the amendment there was no specific motion.

Dr. Tolleson: My motion was that Dr. Torrance's request be granted, that is, his request for a year's time.

Dr. Logan: I make a motion that we table motions and start all over again.

Dr. Tolleson: Mr. Chairman, I move that Dr. Torrance be granted the time that he asked for.

Dr. Torrance: I have been thinking about it for a year. Some of you others fellows ought to think about it for a while.

Dr. Ferguson: We now have before the house several motions, which it has been suggested we table and start over again. Will someone put that into a motion?

Dr. Logan: I move that we table all motions before the house.

Dr. ———: I second that motion.

Dr. Ferguson: The motion that all motions before the house be tabled carried unanimously. We are now open for discussion and new motions.

Dr. Logan: I make a motion that infractions of medical ethics and crimes among the medical profession be given thorough consideration and be reported on by the legislative committee at our next meeting.

Dr. Torrance: I second that motion.

Motion carried:

Dr. Ferguson: A few of the standing committees and special committees had reports published in the pre-convention issue of the Medical Journal. I think all of you got a copy of the May issue. Some committees have not yet reported. Any of those committees who are now ready to report and wish to do so may have their reports read.

Dr. Cook has a report to read.

Dr. Ferguson: Dr. Cook's report is on a subject which is of great interest to all members of our profession regardless of what they are practicing.

Dr. Ferguson: Any other committee reports or any further discussion?

Dr. T. H. Briggs, Wewoka: I have something on my chest as the gentleman said back there, a subject which we have kept putting off. As secretary of a medical society composed of about 75 doctors from two counties, a great many complaints come to me about the osteopaths and chiropractors. Why don't we do something about them? Why isn't something done? They are practicing medicine just the same as regular physicians. It seems to me just as serious a question as abortions. I have been told that a million abortions are done in the United States every year, yet on that side there is law and every now and then some one is put in a penitentiary for that offense. All that is necessary is to go to the county attorney, get evidence, make him go to trial and when he is proven guilty that is all there is to it.

Dr. Smith: These fellows make people believe that they can attach that electric machine to the patient's arm and tell him just exactly what is wrong. A fellow told me the other day that he had been given a dose of Neosalvarsan or 606 or something of that sort with a machine, and that he would rather have it that way than by way of the veins. Such things as that are being practiced every day. The certificate that hangs in one corner of the osteopath's or chiropractor's office says that he is licensed for the purpose of practicing osteopathy only, or the purpose of practicing chiropractics only. How in common sense can you include in that the giving of any kind of medicine? I think we should get all the information we can about them. I don't see how this license can give them the privilege of giving Neosalvarsan or anything else. I think it is a disgrace and I think it is up to us as members of the State Medical Society to do all we can to stop it. If anything is to be done, it is up to the doctors to get State legislation through. We have been told that they can't practice anything that is not taught in their school curriculum. I don't know just what that includes, but it seems to me that they ought to be prosecuted for giving every kind of medicine that they can find out how to give. They even go to the drug store for information. They have an electric appliance for everything. They are loading their offices full of machines for giving Neosalvarsan, curing cancers, and I suppose the next thing will be one

to keep them from having babies. People are just ignorant enough to believe these things, and I think something should be done. I leave the question up before you gentlemen and if you want to do anything. I believe this would be a good time.

Dr. Thompson: I think the best thing to do is to ignore them. If the State Medical Society wants to do something we will do it, but I think it is just a question of how long people will continue to be stung in the way in which they now are. Chiropractors and osteopaths do lots of damage, not only by their methods but by keeping people away from the treatment they should have. Certainly if anything is to be done it is up to the doctors and no one else.

Dr. Kuhn, Oklahoma City: In the first place I would like to say that the Legislature passed a law allowing them to give medicine in emergencies. You can interpret that just as you please. Recently we fought a battle in Oklahoma City, and we lost. This cannot be checked up to the Oklahoma City doctors alone. We probably will continue to do the same thing if the doctors continue as they are. If every doctor goes to his legislator and says that he will get out and work and then do it you will have no more trouble with osteopaths. Until you do that, hold your tongue.

Dr. Thompson: Your county lost the issue by 5000 votes. Washington county nearly beat them, Tulsa beat them by a small majority, but the most enlightened county in the State lost by a large majority. I heard an osteopath quoted regarding the school in which he was taught, as follows: "It just made my heart bleed to pass those wonderful buildings empty and silent." How many osteopaths and chiropractors are being turned out now compared to five or ten years ago.

Dr. Kuhn: I don't know what the comparison is in Oklahoma City.

Dr. Thompson: I have been informed that there are practically none in comparison to previous years.

Dr. Kuhn: The osteopath is licensed to practice osteopathy.

Dr. Thompson: The osteopath is licensed to practice osteopathy and now he has started to practice medicine and that is the trouble. We are naturally poor lawyers. I don't believe the law says they may practice medicine in emergencies. Giving a man pills for a headache is not an emergency. I am pretty sure that the law says they may practice medicine—that medicine which is taught in the curriculum of the school in which they were taught. I am sure that is correct. Those things don't last. Already new cults are being organized, and people who were chiropractors yesterday will belong to new schools tomorrow. Chiropractors today and something else tomorrow. The basic science and basic practices may be the same. It is not much use to prosecute a poor pimple-headed chiropractor. It is not only the ignorant people who are being fooled. One of the smartest of editorial writers, Wm. T. Stead, was fooled. Two cancer "cures" got him in seven years. We had laws passed, the chiropractors submitted them to the people, and they repaid us in Oklahoma county by going 5000 votes against the law.

Dr. Byrum: It seems to me that it is largely an economic question. The question of the cost of being sick is of interest to everybody. It might

be met by an emergency budget, but in the budget of the average family there is nothing to cover the cost of possible illness. This is a question confronting all doctors, and is increased possibly 25 or 30 or 50 per cent by osteopaths, chiropractors, and other cults. I think the economic question had better be solved by an attempt at publicity, or an attempt to reach the people by enlightening information. The doctor is taught to keep in the dark and keep his mouth shut. In the telephone book you will find listed Dr. So and So, and you don't know whether he is an M. D., a D. O., or an X. Y. Z. There ought to be some distinction so that people will know who is scientific and who is not. When people know that they are not going to hunt up the quacks.

Dr. Logan: The laws of our country are made by the legislative body the same as Christianity is carried on by the church, and I think the medical profession has lost out by not putting more doctors in the law-making body. I think there should be in the legislative body of Oklahoma doctors who will get laws to protect the doctors. The railroad people see that they get representatives into the law-making body to protect them, and I think the medical profession ought to see that men get into the Legislature who will protect their interests.

Dr. R. E. Waggoner, Stillwater: I am reminded by this discussion of a similar discussion a group of us had just among ourselves. We all had something to say, but it remained for one of the oldest members to give the wisest expression. He said if people choose to destroy anything for them to leave it alone. The more we say about it the larger they grow and the more they are advertised. We all have patients who tell us they have been to those people, and all the laws in the State won't keep them from going. It seems to me that the degree of education doesn't make much difference in choosing between the chiropractor and the physician. It has been my privilege to notice that just as large a percentage go to these quacks who have one, two, three, or four college degrees as the poor old farmers out in the sticks. You men who have treated them in their own homes know you have some of the most loyal patients among the ignorant class. You know that.

Dr. Mitchell of Yale expressed the idea that 75 to 80 per cent of the time you can talk a man into anything if you talk right. The wise man as well as the simple man will go to these quacks, but it is only among human beings, it is only in the minds of men, that better judgment is not shown. An osteopath or a chiropractor will put out his shingle and he is Dr. So and So, and people because they see the "Dr." on his shingle will go to him. I never heard of a veterinary chiropractor. You can fool a man but you can't fool the old mare.

Dr. Ferguson: If there is no further discussion we will make the motion to adjourn. We will meet here tomorrow morning promptly at 8:00 o'clock as we have a rather large program at the general meeting tomorrow forenoon, and we would like very much to get our business over as promptly as possible.

Meeting adjourned.

C. A. THOMPSON,
Secretary-Treasurer-Editor.

COMMITTEE ON CONSERVATION OF VISION REPORT

Dr. Wynn says, poets have called the eye the mirror of the soul. Since man first developed the faculty of appreciating that tenuous quality named beauty, the eye has received its share of praise. And justly, for more than any other feature, the eye seems the embodiment of life. Mobile and beautiful, richly set, it stirs the imagination as a living jewel, and the outward expression of the mysterious forces of individual life.

But in praising the eye we must not stop with appreciation of its beauty. We must remember that to the eye is due in large measure the credit for tremendous advances which have finally resulted in the civilization of which we are so proud today.

Man, like other animals, depends upon his five senses for his knowledge of the world about him. And by far the most important of these senses is sight. For most of us the adage, "Seeing is believing," holds true. We trust our sight before we trust our other senses. We think in terms of images, and our memory of persons, places and events is derived largely from visual perceptions. Even our more remote conceptions and theories are grounded to a great extent in what we have seen. Although man's rise above the lower animals results from the intricate development of his brain, the ideas which his brain conceives are still based chiefly upon the images conveyed to it by the eye.

The philosopher Plato realized this fact more than two thousand years ago. In one of his dialogues he said: "Sight in my opinion is the source of the greatest benefit to us, for had we never seen the stars, and the sun, and the heavens, none of the words which we have spoken about the universe would ever have been uttered. But now the sight of day and night, and the months and the revolution of the years, have created Number, and have given us a conception of Time, and the powers of inquiring about the Nature of the Universe, and from this source we have derived philosophy, than which no greater good was or will be given by the gods to mortal man."

Less remotely, when we take time to think about the matter, each one of us is conscious of the inestimable aid to ease in living which good eyesight conveys upon us. Those of us possessing normal vision are chilled with terror at the thought of blindness. As for those forced to spend their lives in unending night, only valiant and unflagging effort can surmount their handicap.

Care of the eyes therefore means care of the mechanism which relates us to our surroundings more closely and accurately than does any other mechanism of the body. It is to our own interest and to the interest of society that we conserve our vision—to our own interest because good eyesight promotes our chances of happiness and health, to the interest of society because individuals without physical handicaps are less apt to become burdens to their fellow-citizens or to the State.

In caring for our eyes we must use common sense. If we are forced to do close eye work for long periods we should rest our eyes at intervals by raising them from our work and looking into the distance. The eye is built for distant focusing. It is at rest when it focuses at a distance of about twenty feet. Close work means tension of the muscles. The tension of close work

therefore can be relieved by an occasional glance across the room or out of the window.

When we read we should make sure that the light is adequate, neither too dim, nor so bright that it casts a dazzling reflection on the page. Artificial lights should be sufficiently bright and yet well shaded to protect the eyes from glare. Daylight is the best illumination. But windows should not stare us in the face as we work. When we read or write it is well if the light from windows can be arranged to come to us from behind and over the left shoulder. In this way it neither dazzles our eyes nor casts a shadow on our work.

All young children should have their eyes examined to determine possible defects. Thanks to present-day health work in schools, such examinations are usually given in the school.

If our eyes feel strained from overwork, bathing the lids in very warm or cold water or a solution of boric acid will often relieve them. Inflammation of the lids frequently results in swelling, which is very painful and sometimes needs medical aid for their cure. Repeated attacks of styes are a warning that the eyes need the attention of an oculist.

When a particle of dust gets into one eye, never rub the eye. Rubbing only imbeds the particle still deeper. Sometimes the tears will wash the foreign substance out; sometimes it may be located and removed with a clean handkerchief. If it refuses to come out, a doctor should be consulted.

Accidents to the eye, like other accidents, are often the result of carelessness. For this reason scissors and all sharp instruments should be kept out of the reach of young children. Furthermore, it is important at all times to use extreme care in handling firearms. As innumerable accidents have been caused by children's air rifles, boys should be taught to be as careful with toy guns as they would have to be with the genuine article.

To sum up, the eye, as our window to the outer world, is priceless to our happiness. Let us give it the care which its value demands.

W. ALBERT COOK,
D. D. McHENRY,
GENERAL PINNELL,
Committee.

HOUSE OF DELEGATES

Tuesday, May 7, 1930, 8:15 A. M., Shawnee

Meeting called to order by the President, Dr. E. S. Ferguson.

Roll call of the House by Dr. C. A. Thompson, Secretary.

The first roll call showed 53 delegates and 7 councillors present. (Later some additions were made to these numbers.)

Dr. Ferguson announced as the first order of business, the call for nomination of president-elect.

Dr. P. P. Nesbitt, Tulsa, announced, "I want to nominate one of the old guard in the State. Dr. Howard C. Weber of Bartlesville." There were no other nominations. Dr. L. S. Willour, McAlester, moved that the nominations close. The Secretary cast the vote for the House for Dr. Weber as President-elect.

The next order of business was the selection of a meeting place for 1931.

Dr. Paul B. Chaplin, Enid, nominated Enid.

Dr. Geo. P. Osborne, Tulsa, nominated Tulsa.

Dr. E. S. Crowe, Olustee, nominated Oklahoma City.

After the ballots were cast it was found that Oklahoma City had received 31 votes, Tulsa 16, Enid 13.

Nominations were made for delegates to the American Medical Association, for the years 1931-32 as follows: Dr. W. Albert Cook, Tulsa, and Dr. Horace Reed, Oklahoma City. There were no other nominations and these gentlemen were elected unanimously.

Dr. L. S. Willour and Dr. J. M. Byrum appointed to escort President-Elect Weber to platform. Dr. Willour: it gives us great pleasure to present to you the President-Elect, Dr. H. C. Weber of Bartlesville, Oklahoma.

Dr. H. C. Weber: I don't know what this is all about.

Dr. Ferguson: You are President-Elect of the Oklahoma State Medical Association.

Dr. Weber: This is certainly a surprise to me. With much gratitude I will accept this Presidency and I will try not to do anything that will make me have to apologize for next year. As I said, this is really a surprise. I had a man mention this to me last night, and that is all I have heard anything about, so I have not any speech to make. I just want to say that I accept with much gratitude, and I appreciate this honor and I will try and do the best I can to fill the honor.

Dr. Ferguson: I wish to emphasize the announcement made last night about the action of the Council, in asking that each section elect their Chairman and Secretary this afternoon among the first things they do in their sections. The reason for this, you all understand, is that as a rule they are elected the last night or the last day, when there is about a handful of delegates present in each session, so I hope you will carry this message to the various sections and have your officers elected at the first meeting of the scientific program.

Dr. Ferguson: Is there any other matter of business to come before the house?

Dr. L. S. Willour, McAlester: I would like to speak relative to the date of the meeting of the State Medical Society. We have quite often had conflicting dates between our meetings and the date of the annual meeting of the District Lions Club Convention. At this time the Lions Club is in session at the same time as the dates of this society. I bring a request from the Lions Club at McAlester and the State Association that as soon as they fix their date that the Secretary of the State Medical Society will be notified, so that the dates may not conflict. It just happens that from our Lions Club at McAlester there are four doctors that are quite regular attendants at the State Convention. We are all here today, and we would have liked to have attended that meeting, too. I would like to ask that the Secretary see to it, if possible, that the dates between these two meetings do not conflict, and assure him that he will be notified by the Lions Club the date they fix, and let us try to see that these two meetings do not conflict again.

Dr. J. M. Byrum, Shawnee: Dr. Willour, there is another reason—this week is graduating week in the various schools, and doctors have sons and daughters who are graduating and they would like to be present.

Dr. Byrum: I want to make an announcement: We have an excellent program going on in the Auditorium, a joint meeting of all the sections, continuing from noon today until noon tomorrow.

Dr. Gallaher, Shawnee: To the members of the Rotary Club, I would like to say that we will meet today at 12:15 and want all of you present.

Dr. C. A. Thompson: It is impossible to hold this meeting not in conflict with any other meetings. It is very difficult not to conflict with somebody. I don't see why we should step aside year after year for somebody else. We try to pick our meeting date to conflict as little as possible with other meetings.

Dr. Ferguson: The Medical School set its examination dates three days ahead this year in order not to conflict with this meeting, so that the members of the faculty could attend the meeting in Shawnee, and next year will do the same thing; if we meet at the Medical School, which we probably will, we will have to try to meet after the session closes.

While I am speaking about that I would like to urge all the delegates of the State of Oklahoma and all the members of the profession of the State of Oklahoma to get behind our Medical School and let's keep it as big and as good as we can.

I want to urge you members of the sections to meet promptly; the program is long this afternoon; the hour is 1:30, and remember Dr. Byrum's announcement just now that the general sessions will be held in the Auditorium all the forenoon.

Dr. W. K. West, Oklahoma City: I didn't understand a moment ago whether you offered an invitation from the Oklahoma County Society to the profession of the State. I am officially speaking for the members of the Medical Association of Oklahoma County. We appreciate this honor. We are hoping to be able to give you each year a good clinical meeting. It is the intention of the Clinical Society, which is separate from the Oklahoma County Medical Society, to have annual meetings that compare very favorably with the annual meetings at Kansas City and Dallas. We would have during the year certain minor meetings, and invitations are extended to these clinics to the profession of the whole State. Those of you who fail to receive cards just remember it is possible that your cards were lost in the mail or for some reason your name was not on the mailing list. It is desired that every member of the whole State come to these meetings. The Clinical Society of Oklahoma County expects to make this an annual occasion, growing, of course, as attendance grows.

But we want you to know that you are welcome. We are highly honored that we should have been permitted for the coming year to entertain the State Medical Association, this whole profession as a unit, and we will do our level best to entertain you properly. We will furnish you plenty of clinics. We thank you for this honor.

Dr. Ferguson: I would like to ask Dr. McNeil, Secretary of the Clinical Society, if he has any announcements to make.

Dr. P. M. McNeil, Oklahoma City: The date that has been selected is November 5, 6, and 7; that is the day after general election, Wednesday, Thursday and Friday following the general election in November. We have selected a number of guests. Those who have signified their willingness to come are Dr. Abt, of Chicago; Dr. Harrison, Rochester; Dr. Lahay, of Boston; and Dr. Sachs, of St. Louis, and a number of others. We will have at least ten or twelve out-of-town guests. We are going to try to make this as great a meeting as they have at Kansas City or Dallas, and we feel like Oklahoma City is centrally located and all of you may avail yourselves of this opportunity, and we extend to you an invitation to attend. All of you will receive cards announcing this program.

Dr. West: I would like to make an additional announcement: After this meeting on Thursday, there is to be an alumni meeting of the University Medical College at Oklahoma City, and Thursday evening two alumni of the University who have distinguished themselves in medicine and surgery are to be our guests. Dr. Brown, of the University of Michigan, and Dr. _____ who is connected with Tulane University. I would like for the members to know that they are invited and to this clinic at Oklahoma City.

Dr. Ferguson: I would like to especially urge all the alumni of the University to be there.

The Secretary has a telegram he would like to read:

Secretary: "Tulsa, Oklahoma. State Medical Society, Shawnee, Okla. Kindly meet plane airport six passengers. (Signed) Dr. R. Q. Atchley."

Moved and unanimously carried that the Shawnee police be instructed to meet the plane and passengers.

RESOLUTION

We, the Resolutions Committee, beg leave to present the following Resolution:

To ask the Legislative Committee to request the Legislators to amend the Medical Practice Law including the requirements of newly graduates of medicine and surgery to present a certificate of at least one year internship from a standardized hospital before they will be issued a certificate authorizing them to practice medicine and surgery. This law is for the protection of the hospitals of the State and also for the protection of the individual applicant, and for the protection of the general public.

(Signed) L. J. MOORMAN,
McCLAIN ROGERS,
S. E. MITCHELL.

Shawnee, Okla., May 26, 1930.

Dr. S. E. Mitchell, Muskogee: The question has come up from hospitals in regard to internships being completed, and the Resolutions Committee begs leave to introduce the following:

To so amend the medical practice law, making the requirements of graduates of medicine and surgery to present certificate of at least one year's internship from a reputable hospital before they will be issued certificate authorizing them to practice medicine and surgery.

This law is for the protection of the hospitals and of the State, and also for the protection of the individual applicant, and for the protection of the general public. Signed by the Resolutions Committee.

Dr. Mitchell: I make the motion that this resolution be adopted.

Dr. Byrum, Shawnee: The present law to practice medicine in Oklahoma provides that when the occasion comes that the Board may require internship before delivering diploma. By cooperation with the University Medical School joining with the Class A schools, they are required to have internship before presenting their diploma. This can be worked out without appealing to the legislature itself. That might be done when the Board and doctors of the State saw that it was the best thing to do. I really believe that that occasion has come about, I believe we should join the other more advanced ranks of medicine.

Secretary: Does our University now wait until a man serves his internship?

Dr. Byrum: No.

Secretary: How many men come to you for examination who have not served their internship?

Dr. Byrum: A great majority take the examination before serving their internship.

Secretary: Can it do these young men any injustice? How many of those come for examination before they have served their internship?

Dr. Byrum: About fifteen per cent, and all the applicants who come before our board do not have their diploma because they do not get their diploma before they serve their internship. They take the examination and receive their license later. We do not feel like doing it without the University will join in it.

Dr. Ferguson: If we take this matter up with the University I am sure we would have no trouble.

Dr. Grosshart, Tulsa: The trouble is with the intern at the time of graduation when school is out in the State, about the first of July; their internship all over the State takes effect the first of July. The State Board has a meeting along some month or two after that, and these interns go before the State Board and are issued a certificate to practice medicine; then they have their certificate to practice medicine anywhere in the State they want to, and if they are not picked up by some member of the hospital as assistants, etc., they go out to practice medicine on their own hook, and then the hospital goes straight to, and the truth of the matter is that the hospital about the first of October is left without an intern, and then your examiner comes around and he says "Where is your intern?" That gives a hospital a bad reputation when a man is turned out on the public, and it works an injustice upon the public, and therefore I think the State Board should adopt a resolution, as Dr. Byrum said, to force them to serve internship or not issue a license to any man to practice medicine until he has finished his internship, and that way we will keep the intern located in the hospitals over the State for a length of time.

Dr. L. J. Moorman, Oklahoma City: It seems to me there is a good deal to consider in connection with this subject. I think if we are going to act on this we should consider several facts. Twenty years ago I would have been opposed to acting favorably on this resolution. I didn't have internship but I had a lot of general practice. I had to make a living, for one thing, and a few years ago I was taken off of the staff of a big life insurance company because I had never had an internship. I was considered incompetent

on that account. That helps to cast some light on the present situation. Today I am in favor of requiring internship, for several reasons: The young man today is too ready to jump into special work. He thinks when he gets out of medical school he is qualified for some special work or if he isn't he is likely to be shifted to some group and forced into some speciality, and consequently he is not getting proper knowledge of the general practice of medicine which he may get, in a way, through his internship. I am in favor of this, but I am also in favor of having some standing, at least a law perfected, by which we may measure the hospitals and determine the service they are going to give. If we are going to require a young man to take an internship we should grade the hospitals and decide which one is capable of giving proper advantages for internship, and then the requirement would be justified.

Perhaps some of the young men who start in the internship services are hard up, and they begin to wonder if they are getting anything out of the internship and think they might as well go into practice.

The hospital must be attractive to the intern, it must hold him through superior service, and with that in view I am in favor of this move, as the Resolution said, to protect the public, to protect the hospital and to protect the individual.

Dr. M. B. Glismann, Okmulgee: We are confusing the matter of granting the diploma and the licensing of these applicants. The granting of the diploma would seem to me to come before the Regents of the University itself, and if the University wants to hold up the diploma until at the end of the intern year for their individual graduates that is up to the Regents. On the other hand, if we recommend to the State Board that they not license anybody until they have had a year's internship, then we are taking in the graduates only of the University of Oklahoma but the graduates of a lot of other medical schools, and some of them A Class, who grant diplomas at the end of the school year. This matter of the fifth or intern year is not universal. I do not think we ought to hold up the license of these men who come into the State well qualified just because they do not get their diploma until at the end of their intern year instead of their fourth year. The Medical School should take the first step and require their graduates to have the intern year, and then the licensing board could go on with it.

Dr. Russell G. Pigford, Tulsa: A great many of our interns leave about the time they serve three or four months. It is not treating a graduate right by postponing the matter before you let him take the State examination. How many of us could pass a chemical examination after we have been out of school two or three years. I think he should be allowed a certificate for a year, until he has shown his certificate for one year's work. I think that matter would be a great deal better than by putting a man off a year. Give him a temporary license for a year, if he passes his examination, and then at the end of that time, if the secretary receives a certificate from the hospital, then his license could be issued.

Dr. West, Oklahoma City: I think that I at least voice the sentiment of the faculty of the School of Medicine; I know the sentiment and it is almost universal. The difficulty must first be recognized. The granting of the diploma after a year's internship has been held back; it has

been under consideration for a number of years, but final determination has been held back until some of the better hospital facilities offer themselves. The great difficulty has been for the School of Medicine to be able to say which hospital shall be recognized and which hospital shall not. At the present time throughout the country standardized hospitals are recognized as furnishing the proper instructions for a fifth year, that is the intern year and have been quite well listed. The Medical School feels justified in requiring this fifth year for the issuing of the diploma. That matter has been up for consideration time after time. The matter has been unofficially discussed for several years. The time is coming, and I think at our last faculty meeting it was passed that after 1931, it would be put into effect. Am I right, Dr. Ferguson?

Dr. Ferguson: Yes sir.

Dr. West: After 1931, the diplomas from the School of Medicine from the University of Oklahoma will be issued only after one year internship. It is a pretty broad step. It will be up to the Board of Examiners to grant the examinations and say certificate will be issued when the diploma is presented. That will be one year thereafter. That will take care of all requirements and that is the plan as followed in those states that have required one year internship before the diploma is issued. I think it is a good move; perhaps it should have been adopted in the past, but many difficulties have presented themselves, it will be another year at least before that matter will be ironed out to everyone's satisfaction. It will be up to the Board of Examiners to simply withhold the license to practice until evidence is submitted that the applicant has successfully received a diploma.

Secretary: May I ask you a question? A man comes from Tennessee with a diploma; he has not served an internship; he takes the examination. What effect is that going to have on him?

Dr. West: Not a thing. That is up to the Board of Examiners.

Secretary: Do you propose to treat them all alike and insist on all applicants having served an internship?

Dr. J. M. Byrum, Shawnee: The Board of Examiners like to feel, we like to voice the sentiment of the doctors of the State. We like to feel that we are a part of organized medicine. The law when it was adopted provided that when the occasion demanded the Board could issue these certificates. I think it is an injustice to the new doctor to withhold his examination for a year because they get rusty in that time. I think we can give an examination and hold those grades for additional credentials in the form of certificate of internship. That would apply to all comers for examination, whether they come from Tennessee University or Northwestern, or where. I think it a very good move. It takes a year to put things like that into effect, you can't do it right off the bat. I think Dr. Pigford's idea for taking care of the examinations should be taken care of.

Secretary: Can you permit a man to practice medicine for a while and then withdraw it?

Dr. Byrum: When a man has made application and his credentials seem all right on the face of it the Board has been permitting the Secretary to issue a permit and accommodate him for a while. A great many hospitals in the country do not permit an intern to practice medicine without he is licensed in their state. They might

take the examination, get their grades and give them a type of certificate.

Dr. Ferguson: I might say, doctor, your statement about the University having the subject up: Next year I think we expect to put that requirement into effect in the State University. We have a committee working now on the selection of hospitals that we think are eligible as regular intern hospitals. That is to be worked out, and I think this Resolution is a good one. I think that the State University and the Board of Examiners can work this out together so that it will not conflict in any way between the two organizations. As I said before, I think this year there is not a single student in the senior class expecting to graduate who does not have an internship. It is true, Dr. Pigford, that some of the interns have only served part of the year and quit, and that is an injustice to the hospital and certainly an injustice to him.

Secretary: Dr. Grosshart, how many interns, normally, can your hospitals take care of in Tulsa, Morningside and St. John's?

Dr. Grosshart: I think four at St. John's and four at Morningside.

Secretary: How many can you care for in University Hospital?

Dr. Ferguson: Fifteen.

Secretary: At St. Anthony's?

Dr. Ferguson: Twelve next year.

Secretary: What other hospitals in Oklahoma City offer internships?

Dr. Ferguson: Wesley.

Secretary: How many?

Dr. Ferguson: Two.

Secretary: That provides for thirty-seven net. What is your normal graduation?

Dr. Ferguson: About forty.

Dr. Byrum, Shawnee: Most of them go outside of the State. Preferably internship should be served in some medical school where he has not taken his degree. Some require more internship than their student graduation. That is a matter of interstate business and not of the State. A graduate of a northern school should come to Oklahoma, or elsewhere, so that his medical education should be more cosmopolitan, and a graduate of a southern school should go north for the same reason.

Dr. Ferguson: There are only two graduates of the State University that were selected for internship in the hospital.

Dr. A. Ray Wiley, Tulsa: I think we are getting the cart before the horse. We are trying to do something that we cannot do. This body can recommend to the Legislative Committee this resolution. It is up to the Legislative Committee to work with the Board of Examiners and see if we can, they can, work out a plan. We can't do it—all we can do is to recommend it to them.

Dr. H. M. McClure, Chickasha: I think I am about the youngest fellow in the house. I think I can give you some ideas about internship. In the first place there are twenty internships in Class A. You can pick up the American Medical Journal any week and look in the back and see internships available in some of the largest hospitals in the United States. I think that every man practicing medicine should serve one year internship because when the majority of you older men attended school the great majority of your medical education was practical material;

the majority of the education of the young men is theory until his last year and a half, and I think the man today is incompetent to practice medicine until he has had one year internship in the hospital. I think the majority of the State Boards will allow a man to take his examination and hold his license to practice medicine. There are not many good internships available at all times of the year. The fact is, they can go out and practice and make money, that is the big reason. They say "What's the use of me staying here. I am not getting anything." If they are required to serve a year's internship before they can take their examination they sure will stick. I don't think it is up to the Legislature—it is up to the State Board of Medical Examiners. I think the trend now-a-days is for every graduate to have a year's internship. We are behind right now, as far as standardization of hospitals is concerned.

Dr. J. F. Kuhn, Oklahoma City: In the first place, I want to disabuse Dr. McClure's idea on internship. I want to say this about the reasons for interns quitting: It is just about as Dr. McClure said. This has been up before, the standardization of hospitals, only too often. At the present time they have thrown out a number of recognized hospitals for internships are diminishing because they are not furnishing the proper instruction for this fifth year. That must be given a great deal of consideration. These young men, when they leave school, want to go to a hospital where they are advancing themselves and where they have proper instruction, and it finally resolves itself into "What kind of staff do you have?" "Is this staff competent to teach and will that staff teach?" The vast majority of them, if they are kept so interested by a staff that is willing to give in and teach, and is capable of teaching, you will stay that one year.

Dr. Ferguson: I understand this Resolution is passed for the State Board of Examiners as a guide, was it not, in working out a plan to require one year's internship?

Dr. Grosshart: The Resolution was brought up for this reason: That we want the protection of the hospital and want protection for the intern and protection for the general public on a new graduate.

WHEREAS, The Pottawatomie County Medical Society and the City of Shawnee have made splendid provision for our entertainment and comfort for the Annual Meeting of our Association, which will be long remembered by the membership:

THEREFORE, Be It Resolved, That we commend them most highly for their efforts which made the meeting so enjoyable and profitable to our Association, and extend to them our hearty thanks for their thoughtfulness of every detail, and that a copy of this Resolution be furnished the Secretary of the Pottawatomie County Medical Society for their files, so that posterity, who care to peruse, may know of the good time we had in Shawnee in 1930.

L. J. MOORMAN,
McLAIN ROGERS,
S. E. MITCHELL.

Shawnee, Okla., May 28, 1930.

There being no further business before the House, motion to adjourn was adopted.

C. A. THOMPSON,
Secretary-Treasurer-Editor.

ROSTER

Oklahoma State Medical Association

1930

ADAIR COUNTY

Chambers, D. P. Stilwell
Church, R. M. Stilwell
Greene, E. P. Westville
Patton, Jos. A. Stilwell
Poyner, E. E. Stilwell
Rogers, I. W. Watts
Sellars, R. L. Westville

ALFALFA COUNTY

Bishop, J. P. Aline
Clark, Z. J. Cherokee
Harris, G. G. Helena
Huston, H. E. Cherokee
Lancaster, L. T. Cherokee
Lile, H. A. Cherokee
Ludlum, E. C. Carmen
Mercer, J. Wendell Cherokee
Smith, C. N. Cherokee
Weber, A. G. Goltry
Wheeler, H. M. ..964½ Central, Kansas City, Kan.

ATOKA COUNTY

Bates, Frank Coalgate
Clark, J. B. Coalgate
Fulton, J. S. Atoka
Gardner, C. C. Atoka
Gee, L. E. Lone Oak, Texas

BECKHAM COUNTY

Baker, L. V. Elk City
Ballenger, B. M. Strong City
Cary, W. S. Reyden
Conner, E. E. Erick
Denby, J. M. Carter
Doler, C. Elk City
Edmonds, R. L. Sayre
Huntley, A. A. Elk City
Kilpatrick, E. S. Elk City
Levick, J. E. Carter
McCreary, R. C. Erick
McGrath, T. J. Sayre
Oliver, W. D. Erick
Palmer, T. D. Elk City
Phillips, G. W. Sayre
Roberts, B. B. Texola
Shadid, M. Elk City
Speed, H. K. Sayre
Stagner, G. H. Erick
Standifer, J. E. Elk City
Standifer, O. C. Elk City
Stone, DeWitt. Sayre
Threlkeld, W. C. Sweetwater
Tisdal, V. C. Elk City
Warford, J. D. Erick

BLAINE COUNTY

Barnett, J. S. Hitchcock
Browning, J. W. Geary
Buchanan, F. R. Canton
Griffin, W. F. Watonga (Sec'y)
Hart, Edgar E. Canton
Leisure, J. B. Watonga

Milligan, E. F. Geary
Murdock, L. H. Okeene
Veatch, E. P. Okeene

BRYAN COUNTY

Armstrong, David Durant
Austin, W. G. Mead
Cain, P. L. Albany
Cochran, Roy L. Caddo
Coker, B. B. Durant
Colwick, J. T. Durant
De Lay, W. D. Ray, Arizona
Dale, C. D. Atoka
Fuston, H. B. Bokchito
Green, C. J. Durant
Haynie, John A. Durant
Houser, W. A. Durant
Jackman, F. M. Mead
Keller, J. R. Sulphur
Lively, R. A. Durant
McCarley, W. H. Colbert
Moore, B. H. Perrine Bldg. Oklahoma City
Moore, Chas. F. Durant
Price, C. C. Durant
Rains, S. W. Aylesworth
Rushing, G. M. Durant
Sawyer, R. E. Durant
Smith, J. B. Durant
Shuler, Jas. L. Durant
Wann, C. E. Albany
Wells, A. J. Calera
Wharton, John T. Durant
Works, W. S. Bennington

CADDO COUNTY

Anderson, Parkey H. Anadarko
Brown, Benj. D. Apache
Butler, Isaac S. Carnegie
Campbell, Geo. C. Anadarko
Cantrell, J. H. Carnegie
Clark, I. Ross Carnegie
Dinkler, Fred Ft. Cobb
Dixon, Wallace L. Cement
Downs, Edw. W. Hinton
Gillespie, Clifton P. Anadarko
Hawkins, Eugene W. Carnegie
Hawn, Wm. T. Binger
Henke, Jos. J. Hydro
Hobbs, Arthur F. Hinton
Hume, Chas. R. Anadarko
Inman, Edw. L. Apache
Johnson, Romney E. Bridgeport
Kerley, Wm. M. Anadarko
McCarty, D. E. Eakley
McClure, Phillip L. Ft. Cobb
McMillan, Chas. B. Gracemont
Meador, C. N. Anadarko
Putnam, Wm. B. Carnegie
Rector, Richard D. Anadarko
Rogers, Frank W. Carnegie
Smith, Carlton A. Hinton
Taylor, Albert H. Anadarko
Vann, Wade H. Cement
Williams, Reuben W. Anadarko
Williams, Suel E. Hydro

CANADIAN COUNTY

| | |
|---------------------------|------------|
| Aderhold, Thos. M. | El Reno |
| Brown, H. C. | El Reno |
| Catto, Wm. B. | El Reno |
| Dever, Harvey A. | El Reno |
| Goodman, G. L. | Yukon |
| Herod, P. F. | El Reno |
| Hocker, A. F. | El Reno |
| Johnson, A. L. | El Reno |
| Lane, Thos. B. | El Reno |
| Lawton, W. P. | El Reno |
| Muzzy, Wm. J. | El Reno |
| Myers, P. B. | El Reno |
| McCarthy, A. M. | Yukon |
| Patterson, Frank R. | El Reno |
| Phelps, Jcs. T. | El Reno |
| Richardson, David P. | Union City |
| Riley, Jas. T. | El Reno |
| Stough, D. F. | Geary |
| Taylor, Guy W. | El Reno |
| Tomkins, J. E. | Yukon |
| Wolff, L. G. | Okarchee |

CARTER COUNTY

| | |
|-------------------------|------------|
| Autry, David | Marietta |
| Barker, E. R. | Healdton |
| Baruwell, J. H. | Graham |
| Boadway, F. W. | Ardmore |
| Cameron, J. H. | Healdton |
| Cantrell, D. E. | Healdton |
| Cox, J. L. | Ardmore |
| Easterwood, A. Y. | Ardmore |
| Gillespie, L. D. | Berwin |
| Hardy, Walter | Ardmore |
| Harrison, F. A. | Ardmore |
| Hathaway, W. G. | Lone Grove |
| Higgins, H. A. | Ardmore |
| Hines, S. J. T. | Earlsboro |
| Henry, R. H. | Ardmore |
| Jackson, T. J. | Ardmore |
| Johnson, C. A. | Wilson |
| Johnson, G. E. | Ardmore |
| Johnson, Walter M. | Ardmore |
| Looney, McDonald | Marietta |
| McNeese, J. C. | Ardmore |
| Pollock, J. R. | Ardmore |
| Sain, W. C. | Ardmore |
| Sullivan, R. C. | Ardmore |
| Taylor, Dow | Woodford |
| Von Keller, F. P. | Ardmore |
| Woods, L. D. | Wilson |

CHEROKEE COUNTY

| | |
|----------------------|-----------|
| Allison, J. S. | Tahlequah |
| Baines, Swartz | Tahlequah |
| Baird, A. A. | Tahlequah |
| Bond, T. J. | Tahlequah |
| Medearis, P. H. | Tahlequah |
| Thompson, J. M. | Tahlequah |

CHOCTAW COUNTY

| | |
|---------------------|----------|
| Hale, C. H. | Boswell |
| Hampton, K. P. | Seminole |
| Harris, G. E. | Hugo |
| John, W. N. | Hugo |
| Johnson, E. A. | Hugo |
| Moore, J. D. | Hugo |
| Wolfe, Reed | Hugo |

CLEVELAND COUNTY

| | |
|--------------------|--------|
| Bobo, C. S. | Norman |
| Bond, I. T. | Norman |
| Boyd, T. M. | Norman |
| Brake, Arthur | Norman |

| | |
|------------------------|--------------------------------|
| Clifton, G. M. | Norman |
| Cooley, B. H. | Norman |
| Day, J. L. | Norman |
| Ellison, Gayfree | Norman |
| Gable, J. J. | Norman |
| Griffin, D. W. | Norman |
| Hilsmeier, F. E. | Norman |
| Kniseley, H. B. | Norman |
| Lambert, J. B. | Lexington |
| Lowther, R. D. | Norman |
| Mayfield, W. T. | Norman |
| Nielson, Gertrude | Norman |
| Rayburn, Chas. | Norman |
| Steen, Carl | Norman |
| Stephens, E. F. | Norman |
| Thacker, R. E. | Lexington |
| Turley, L. A. | Norman |
| Wickham, M. M. | Norman |
| Wiley, G. W. | Norman |
| Willard, D. G. | 800 E. 13th St., Oklahoma City |

COMANCHE COUNTY

| | |
|---------------------------|--------------|
| Angus, Haney A. | Lawton |
| Antony, Jos. T. | Lawton |
| Barber, Geo. S. | Lawton |
| Benson, Adelbert, H. | Faxon |
| Broshears, Jackson | Lawton |
| Dunlap, Earnest B. | Lawton |
| Dunlap, Perry G. | Lawton |
| Ferguson, L. W. | Lawton |
| Gooch, Edward S. | Lawton |
| Gooch, Lewis T. | Lawton |
| Halsted, A. B. | Temple |
| Hammond, Fred W. | Lawton |
| Hood, John R. | Indianapolis |
| Hues, Charlie P. | Lawton |
| Joyce, Charles W. | Fletcher |
| Kerr, Geo. E. | Chattanooga |
| King, Louise S. | Lawton |
| Knee, Lorin C. | Lawton |
| Lutner, Thos. R. | Lawton |
| Malcolm, John W. | Lawton |
| Martin, Chesley M. | Elgin |
| Mason, Wm. J. | Lawton |
| Mitchell, E. Brent | Lawton |
| Stewart, A. H. | Lawton |

COTTON COUNTY

| | |
|-----------------------|---------|
| Alexander, C. W. | Temple |
| Baker, G. W. | Walters |
| House, C. F. | Walters |

CRAIG COUNTY

| | |
|-------------------------|-------------------------------|
| Adams, F. M. | Vinita |
| Bagby, Louis | Vinita |
| Bell, C. P. | Welch |
| Cornwell, N. L. | Meridian |
| Doggett, Sylvester | Vinita |
| Elam, B. L. | Centralia |
| Gastineau, F. T. | Vinita |
| Hays, P. L. | Vinita |
| Herron, A. W. | Vinita |
| Marks, W. R. | Vinita |
| Mitchell, Robt. L. | U. S. Vet. Hospital, Muskogee |
| Neer, C. S. | Vinita |
| Stough, D. B. | Vinita |
| Walker, J. F. | Grove |

CREEK COUNTY

| | |
|----------------------|---------|
| Bisbee, W. G. | Bristow |
| Buchanan, J. E. | Mounds |
| Coppedge, O. C. | Bristow |
| Coppedge, O. S. | Depew |
| Cowart, O. H. | Bristow |

| | |
|------------------------|-----------|
| Croston, G. C. | Sapulpa |
| Driver, C. M. | Mounds |
| Haas, Harry | Sapulpa |
| Harrington, W. E. | Depew |
| Hollis, J. E. | Bristow |
| Jones, Alva | Sapulpa |
| Jones, Ellis | Sapulpa |
| King, E. W. | Bristow |
| Lampton, J. P. | Sapulpa |
| Leatherock, R. E. | Drumright |
| Lewis, P. K. | Sapulpa |
| Longmire, W. P. | Sapulpa |
| Mattenlee, J. M. | Sapulpa |
| McDonald, C. R. | Mannford |
| Mote, Paul | Sapulpa |
| Neal, Wm. J. | Drumright |
| Reynolds, E. W. | Bristow |
| Reynolds, S. W. | Drumright |
| Sanger, Paul | Drumright |
| Shrader, Chas. T. | Bristow |
| Sisler, G. W. | Bristow |
| Sisler, Frank H. | Bristow |
| Starr, O. W. | Drumright |
| Sweeney, R. M. | Sapulpa |
| Weaver, E. R. | Shamrock |
| Wells, John M. | Bristow |
| Williams, J. Clay | Bristow |

CUSTER COUNTY

| | |
|--------------------------|-------------|
| Alexander, C. J. | Clinton |
| Boyd, T. A. | Weatherford |
| Darnell, E. E. | Clinton |
| Frizzell, J. T. | Clinton |
| Gaede, D. | Weatherford |
| Gossom, K. D. | Custer |
| Hinshaw, J. R. | Butler |
| Lamb, Ellis | Clinton |
| Lamb, Lealon E. | Clinton |
| Loyd, E. M. | Taloga |
| McBurney, H. | Clinton |
| Parker, O. H. | Custer |
| Parker, W. W. | Thomas |
| Rogers, McLain | Clinton |
| Ruhl, N. E. | Weatherford |
| Seba, W. E. | Leedy |
| Vieregg, Frank R. | Clinton |
| Williams, Gordon D. | Weatherford |

DEWEY COUNTY

| | |
|----------------------|-------|
| Allen, Frank W. | Leedy |
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GARFIELD COUNTY

| | |
|------------------------|-------------|
| Baker, R. C. | Enid |
| Champlin, Paul B. | Enid |
| Cotton, L. W. | Enid |
| Field, Julian | Enid |
| Francisco, Glenn | Enid |
| Francisco, J. W. | Enid |
| Gregg, O. R. | Enid |
| Hamble, V. R. | Enid |
| Hartman, G. O. | Sharon, Pa. |
| Harris, D. C. | Drummond |
| Hinson, T. B. | Enid |
| Hopkins, P. W. | Enid |
| Hudson, F. A. | Enid |
| Hudson, H. H. | Enid |
| Kendall, W. L. | Enid |
| Kiebler, W. G. | Enid |
| Lamerton, W. E. | Enid |
| Mahoney, J. E. | Enid |
| Mayberry, S. N. | Enid |
| McEvoy, S. H. | Enid |
| McInnis, A. L. | Enid |
| Moore, J. W. | Enid |
| Neilson, W. P. | Enid |
| Newell, W. B. | Enid |

| | |
|---------------------------|-----------|
| Piper, A. S. | Enid |
| Rhodes, W. H. | Enid |
| Roberts, D. D. | Enid |
| Robinson, F. P. | Nash |
| Stone, Roy D. | Covington |
| Swank, J. R. | Enid |
| Tedrowe, C. W. | Enid |
| Van Arsdell, Paul P. | Enid |
| Vandever, H. F. | Enid |
| Walker, J. R. | Enid |
| Watson, J. M. | Enid |
| Wigner, R. H. | Enid |
| Wilkins, A. E. | Covington |
| Wolf, E. J. | Waukomis |

GARVIN COUNTY

| | |
|---------------------------|--------------|
| Branum, Tecumseh, C. | Pauls Valley |
| Burns, S. L. | Stratford |
| Callaway, John R. | Pauls Valley |
| Greening, W. P. | Pauls Valley |
| Gross, T. F. | Lindsay |
| Johnson, G. L. | Pauls Valley |
| Lain, E. H. | Lindsay |
| Lindsay, Newton H. | Pauls Valley |
| Markham, H. P. | Pauls Valley |
| Monroe, Hugh | Lindsay |
| Rawls, W. E. | Paoli |
| Robberson, M. E. | Wynnewood |
| Shi, A. H. | Stratford |
| Smith, L. P. | Elmore City |
| Sullivan, C. L. | Elmore City |
| Taylor, E. F. | Maysville |
| Tucker, J. W. | Lindsay |
| Wilson, H. P. | Wynnewood |
| Young, James A. | Maysville |

GRADY COUNTY

| | |
|------------------------|--------------|
| Ambrister, J. C. | Chickasha |
| Antle, H. C. | Chickasha |
| Barry, W. R. | Alex |
| Baze, Walter | Chickasha |
| Bledsoe, Martha | Chickasha |
| Bonnell, W. L. | Chickasha |
| Boon, U. C. | Chickasha |
| Carmichael, M. M. | Alex |
| Cook, W. H. | Chickasha |
| Cox, C. P. | Ninnekah |
| Dawson, E. L. | Chickasha |
| Downey, D. S. | Chickasha |
| Emanuel, L. E. | Chickasha |
| Emanuel, Roy E. | Chickasha |
| Evans, H. M. | Rush Springs |
| Gerard, G. R. | Chickasha |
| Hampton, P. J. | Rush Springs |
| Henning, A. E. | Tuttle |
| Hume, R. R. | Minco |
| Leeds, A. B. | Chickasha |
| Little, J. S. | Minco |
| Livermoore, W. H. | Chickasha |
| Marrs, S. O. | Chickasha |
| Mason, Rebecca H. | Chickasha |
| McClure, H. M. | Chickasha |
| McVey, G. M. | Verden |
| Mitchell, C. P. | Chickasha |
| Nunnery, A. W. | Chickasha |
| Pratt, C. M. | Minco |
| Renegar, J. F. | Minco |
| White, A. C. | Chickasha |
| Woods, L. E. | Chickasha |

GRANT COUNTY

| | |
|--------------------------|------------|
| Drennan, G. T. | Pond Creek |
| Hamilton, A. | Manchester |
| Hardy, I. V. | Medford |
| Lawson, E. E. | Medford |
| Lively, S. A. | Wakita |
| Tucker, Marshall J. | Nash |

GREER COUNTY

| | |
|-----------------------|-----------------------------|
| Austin, C. W. | Mangum |
| Border, G. F. | Mangum |
| Chambers, M. E. | Vinson |
| Cherry, G. P. | Mangum |
| Dodson, W. O. | Willow |
| Hollis, J. B. | Mangum |
| Jeter, O. R. | Mangum |
| Jumblatt, Albert | Tuttle |
| Lansden, J. B. | Granite |
| Lowe, J. T. | Granite |
| McGregor, F. H. | Mangum |
| Meredith, J. S. | Duke |
| Nunnery, T. J. | Granite |
| Pearson, L. E. | Mangum |
| Poer, E. M. | Mangum |
| Shaw, C. C. | 1501 E. 11th, Oklahoma City |

HARMON COUNTY

| | |
|-------------------------|--------|
| Allgood, John M. | Gould |
| Hopkins, Samuel W. | Hollis |
| Husband, Wm. G. | Hollis |
| Jones, James E. | Hollis |
| Lynch, Russell H. | Hollis |
| Ray, W. T. | Gould |
| Yeagan, Wm. M. | Hollis |

HASKELL COUNTY

| | |
|-------------------------|-----------|
| Carson, Wm. S. | Keota |
| Hill, Arthur T. | Stigler |
| Jones, Ralph, E. | Maud |
| Johnson, Emmett | Kinta |
| McDonald, James W. | Hoyt |
| Rumley, Jas. C. | Stigler |
| Terrell, Ross F. | Stigler |
| Turner, T. Boyd | Stigler |
| Williams, N. K. | McCurtain |

HUGHES COUNTY

| | |
|--------------------------|-------------|
| Atkins, W. D. | Holdenville |
| Baker, J. H. | Lamar |
| Bentley, J. A. | Allen |
| Butts, A. M. | Holdenville |
| Davenport, A. L. | Holdenville |
| Diggs, G. W. | Wetumka |
| Felix, T. B. | Holdenville |
| Floyd, W. E. | Holdenville |
| Hamilton, S. H. | Calvin |
| Hicks, C. A. | Wetumka |
| Howell, Franklin A. | Holdenville |
| Mitchell, P. E. | Wetumka |
| Musser, J. F. | Calvin |
| Parker, E. | Dustin |
| Robertson, Ira | Holdenville |
| Scott, J. D. | Holdenville |
| Silverman, A. H. | Holdenville |
| Taylor, W. L. | Gerty |
| Wallace, Chas. | Holdenville |
| Whittle, C. C. | Holdenville |

JACKSON COUNTY

| | |
|-------------------------|----------------------------|
| Abernethy, Edw. A. | Altus |
| Berry, Thos. H. | Eldorado |
| Bird, Jesse | Eldorado |
| Brown, Guy | Dumas, Texas |
| Brown, R. F. | Altus |
| Buck, D. C. | Eldorado |
| Byars, A. C. | 162 Clyde, Concord, Calif. |
| Crow, Emory S. | Olustee |
| Ensey, J. E. | Blair |
| Fox, R. H. | Altus |
| Hix, Jos. B. | Altus |
| Humphrey, J. A. | Martha |
| Mabry, Earl W. | Altus |

| | |
|-----------------------|----------|
| Mays, R. H. | Duke |
| McConnell, L. H. | Altus |
| McFadin, J. S. | Altus |
| Pyle, Oscar S. | Altus |
| Reid, Frank I. | Altus |
| Reid, John R. | Altus |
| Rudell, W. P. | Altus |
| Spears, Claud G. | Altus |
| Spencer, D. O. | Headrick |
| Taylor, R. Z. | Blair |

JEFFERSON COUNTY

| | |
|---------------------------|----------|
| Andreskoski, W. T. | Ryan |
| Burgess, Wm. C. | Ringling |
| Browning, W. M. | Waurika |
| Collins, D. B. | Waurika |
| Derr, J. I. | Waurika |
| Edwards, F. M. | Ringling |
| Hollingsworth, J. I. | Waurika |
| Maupin, C. M. | Waurika |
| McPherson, J. M. | Terral |
| Prestridge, B. A. | Hastings |
| Wade, L. L. | Ryan |
| Watson, J. W. | Ryan |

JOHNSON COUNTY

| | |
|--------------------|------------|
| Clark, Guy | Milburn |
| Looney, J. T. | Tishomingo |

KAY COUNTY

| | |
|-----------------------|-------------------------|
| Armstrong, W. O. | Ponca City |
| Arrendell, C. W. | Ponca City |
| Becker, L. H. | Blackwell |
| Berry, G. L. | Blackwell |
| Browne, H. S. | Ponca City |
| Clift, Merl | Blackwell |
| Cooper, F. M. | Ponca City |
| Cowgill, D. M. | 2001 So. 4th, St. Louis |
| Denham, T. W. | Three Sands |
| Edwards, P. A. | Nardin |
| Gibson, R. B. | Ponca City |
| Gowey, H. O. | Newkirk |
| Hawkins, J. C. | Blackwell |
| Kramer, Allen C. | Ponca City |
| Leslie, W. M. | Blackwell |
| Lipscomb, Pat | Ponca City |
| McClurkin, W. N. | Ponca City |
| McElroy, Thos. | Ponca City |
| Miller, D. W. | Blackwell |
| Neal, L. G. | Ponca City |
| Niemann, G. H. | Ponca City |
| Norheutt, C. E. | Ponca City |
| Nuckols, A. S. | Ponca City |
| Risser, A. S. | Blackwell |
| Vance, L. C. | Ponca City |
| Waggoner, E. E. | Tonkawa |
| Wagner, J. C. | Ponca City |
| Walker, I. D. | Tonkawa |
| White, W. S. | Blackwell |

KINGFISHER COUNTY

| | |
|-------------------------|------------|
| Cavitt, E. R. | Loyal |
| Dixon, A. | Hennessey |
| Fisk, Chas. W. | Kingfisher |
| Gose, C. O. | Hennessey |
| Hodgson, C. M. | Kingfisher |
| Meredith, A. O. | Kingfisher |
| Pendleton, John W. | Kingfisher |
| Rector, Newton | Hennessey |
| Scott, Frank | Kingfisher |
| Townsend, B. I. | Hennessey |
| Dillard, J. A. | Cashion |
| Vincent, I. N. | Dover |

KIOWA COUNTY

| | |
|----------------------|-----------|
| Adams, J. L. | Hobart |
| Ballard, J. D. | Mt. View |
| Bonham, J. M. | Hobart |
| Bryce, J. R. | Snyder |
| Gray, M. | Mt. View |
| Hathaway, A. H. | Mt View |
| Land, J. A. | Hobart |
| Lloyd, H. C. | Hobart |
| Martin, F. F. | Roosevelt |
| McIlwain, Wm. | Lone Wolf |
| Miles, E. P. | Hobart |
| Moore, J. H. | Hobart |
| Ritter, J. M. | Roosevelt |
| Walker, F. E. | Lone Wolf |
| Watkins, B. H. | Hobart |
| Winter, J. D. | Hobart |

LATIMER COUNTY

| | |
|----------------------|------------------|
| Evins, E. L. | Wilburton |
| Hamilton, E. B. | Wilburton |
| Harris, J. M. | Wilburton |
| Henry, T. L. | Wilburton |
| Morrison, C. R. | Weed, New Mexico |
| Rich, R. L. | Red Oak |

LEFLORE COUNTY

| | |
|----------------------|-------------|
| Baker, F. P. | Talihina |
| Booth, G. R. | Leflore |
| Collins, E. L. | Panama |
| Dean, S. C. | Howe |
| Duff, W. M. | Braden |
| Fair, E. N. | Heavener |
| Gilliam, W. C. | Spiro |
| Hardy, Harrell | Poteau |
| Harrison, M. W. | Shady Point |
| Harvey, John H. | Heavener |
| Hunt, W. J. | Poteau |
| Jones, L. D. | Talihina |
| Lunsford, W. F. | Poteau |
| Minor, R. M. | Williams |
| Mixon, A. M. | Spiro |
| Shippey, W. L. | Wister |
| Van Cleave, Wm. | Talihina |
| Wear, J. B. | Wister |
| Wright, R. L. | Talihina |
| Woodson, E. M. | Poteau |

LINCOLN COUNTY

| | |
|-----------------------|-----------|
| Adams, J. W. | Chandler |
| Baird, W. D. | Stroud |
| Brown, F. C. | Sparks |
| Brown, R. A. | Prague |
| Davis, W. B. | Tryon |
| Davis, W. H. | Chandler |
| Erwin, Para | Wellston |
| Glenn, J. O. | Stroud |
| Hancock, J. M. | Chandler |
| Hannah, R. H. | Prague |
| Hurlbut, E. F. | Meeker |
| Iles, H. C. | Prague |
| Jenkins, H. B. | Tryon |
| Marshall, A. M. | Chandler |
| Nichols, U. E. | Davenport |
| Murray, Levi | Wellston |
| Norwood, F. H. | Prague |
| Robertson, C. W. | Chandler |
| Rollins, J. S. | Prague |
| Sosbee, J. W. | Stroud |

LOGAN COUNTY

| | |
|----------------------|---------|
| Allen, Robt. | Guthrie |
| Barker, C. B. | Guthrie |
| Barker, E. O. | Guthrie |
| Barker, Pauline | Guthrie |

| | |
|-------------------------|----------|
| Branson, C. S. | Coyle |
| Childers, A. G. T. | Mulhall |
| Gardner, P. B. | Marshall |
| Goodrich, E. E. | Crescent |
| Gray, Dan | Guthrie |
| Hahn, L. A. | Guthrie |
| Hill, C. B. | Guthrie |
| Larkin, W. H. | Guthrie |
| LeHew, J. L. | Guthrie |
| Melvin, J. L. | Guthrie |
| Miller, Wm. C. | Guthrie |
| Petty, C. S. | Guthrie |
| Ringrose, R. F. | Guthrie |
| Ritzhaupt, L. H. | Guthrie |
| Souter, J. E. | Guthrie |
| Trigg, F. E. | Guthrie |
| West, A. A. | Guthrie |

MAJOR COUNTY

| | |
|----------------------|----------|
| Anderson, J. V. | Fairview |
| Specht, Elsie | Fairview |

MARSHALL COUNTY

| | |
|----------------------|--------------|
| Ford, W. H. | Sudan, Texas |
| Haynie, W. D. | Kingston |
| Holland, J. L. | Madill |
| Robinson, P. F. | Madill |

MAYES COUNTY

| | |
|---------------------------|------------------------------|
| Adams, Sylba, | Pryor |
| Bryant, W. C. | Choteau |
| Hollingsworth, J. E. | Strang |
| Morrow, B. L. | Salina |
| Puckett, Carl | 22 W. 6th St., Oklahoma City |
| Whitaker, W. J. | Pryor |
| White, L. C. | Adair |

McCLAIN COUNTY

| | |
|---------------------|-----------|
| Barger, G. S. | Purcell |
| Dawson, O. O. | Wayne |
| Kolb, I. N. | Blanchard |
| McCurdy, W. C. | Purcell |
| Slover, W. B. | Blanchard |

McCURTAIN COUNTY

| | |
|----------------------|------------|
| Barker, N. L. | Broken Bow |
| Clarkson, A. W. | Valliant |
| Kelleam, E. A. | Geary |
| Moreland, J. T. | Idabel |
| Moreland, W. A. | Idabel |
| Sherill, R. H. | Broken Bow |
| Thompson, J. M. | Walters |
| Williams, R. D. | Idabel |

McINTOSH COUNTY

| | |
|------------------------|----------|
| Bennett, Dyton | Texanna |
| Jacobs, L. I. | Hanna |
| Lee, N. P. | Checotah |
| Little, D. E. | Eufaula |
| *McCulloch, J. H. | Checotah |
| Smith, F. L. | Eufaula |
| Tolleson, W. A. | Eufaula |
| West, G. W. | Eufaula |

MURRAY COUNTY

| | |
|------------------------|----------|
| Anadown, P. V. | Sulphur |
| Bailey, Howson C. | Sulphur |
| Brown, A. P. | Davis |
| Brown, Byron B. | Davis |
| Brown, I. N. | Fletcher |
| Luster, J. C. | Davis |

*—Deceased.

| | |
|--|---------|
| Powell, W. H. | Marland |
| Rhodes, G. A., U. S. V. B., Regional Office. San Francisco, Calif. | |
| Slover, Geo. W. | Sulphur |
| Sprouce, O. W. | Sulphur |
| Sullivan, A. H. | Sulphur |

MUSKOGEE COUNTY

| | |
|------------------------|----------------|
| Hamm, S. G. | Haskell |
| Harrod, R. T. | Box 73, Oktaha |
| Johlin, W. R. | Porter |
| Pearce, W. E. | Boynton |
| Shakleford, T. T. | Haskell |
| Waltrip, J. R. | Coweta |

MUSKOGEE

| | |
|---|--------------------------|
| Ballantine, H. T. | Surety Bldg. |
| Berry, W. D. | Barnes Bldg. |
| Blakemore, J. L. | Barnes Bldg. |
| Coachman, E. H. | Barnes Bldg. |
| DeGroot, C. E. | Manhattan Bldg. |
| Donnell, R. N. | Raymond Bldg. |
| Dorwart, F. G. | Barnes Bldg. |
| Dwight, K. M. | 808 No. "C" St. |
| Earnest, A. N. | Barnes Bldg. |
| Everly, A. W. | Equity Bldg. |
| Ewing, F. W. | Surety Bldg. |
| Fite, E. H. | Barnes Bldg. |
| Fite, W. P. | Barnes Bldg. |
| Fryer, S. J. | Surety Bldg. |
| Fullenwider, C. M. | Barnes Bldg. |
| Gregory, A. L. | Manhattan Bldg. |
| Harris, A. W. | Surety Bldg. |
| Heitzman, C. E. | Barnes Bldg. |
| Holcombe, N. R. | Surety Bldg. |
| King, F. S. | Surety Bldg. |
| Klass, O. C. | Surety Bldg. |
| Mitchell, S. E. | U. S. Veteran's Hospital |
| McAlister, L. S. | Barnes Bldg. |
| Mobley, A. L. | 1017 Emporia |
| Muller, J. A. | U. S. Veteran's Hospital |
| Murphy, C. P. | Washington, D. C. |
| Neeley, S. D. | Commercial Bank Bldg. |
| Nichols, J. T. | Equity Bldg. |
| Oldham, I. B. Jr. | 426 No. 6th St. |
| Oldham, I. B. Sr. | 426 No. 6th St. |
| Rafter, J. G. | 425 South 13th |
| Reynolds, John | Maxonic Bldg. |
| Rice, C. V. | Barnes Bldg. |
| Scott, H. A. | Manhattan Bldg. |
| Scott, Hugh | Hines, Ill. |
| Stocks, A. L. | Barnes Bldg. |
| Thompson, C. A. | U. S. Veteran's Hospital |
| Thompson, M. K. | Surety Bldg. |
| Vittum, J. S. | Barnes Bldg. |
| Walton, F. L. | Surety Bldg. |
| Warterfield, F. E., Commercial Nat'l Bank Bldg. | |
| White, C. E. | Surety Bldg. |
| White, J. H. | Surety Bldg. |
| Wilkiemeyer, F. J. | Barnes Bldg. |
| Wolfe, I. C. | 426 No. 6th St. |

NOBLE COUNTY

| | |
|-----------------------|----------|
| Cavitt, Robt. A. | Morrison |
| Coldiron, D. F. | Perry |
| Francis, J. W. | Perry |
| Gaines, S. H. | Lucien |
| Kuntz, L. | Perry |
| Owens, B. A. | Perry |
| Renfrow, T. F. | Billings |

NOWATA COUNTY

| | |
|----------------------|--------|
| Dolson, F. R. | Nowata |
| Lawson, D. M. | Nowata |
| Prentiss, H. M. | Nowata |

| | |
|----------------------|----------|
| Prentiss, M. B. | Nowata |
| Roberts, S. P. | Nowata |
| Scott, M. B. | Delaware |
| Sudderth, J. P. | Nowata |
| Waters, G. A. | Lenapah |

OKFUSKEE COUNTY

| | |
|-------------------------|------------------------------|
| Adams, Allen C. | Weleetka |
| Bombarger, C. C. | Paden |
| Bloss, C. M. | Okemah |
| Bryce, M. O. | Okemah |
| Cochran, C. M. | Okemah |
| Dovell, John C. | P. O. Box No. 56, Paden |
| Jenkins, W. P. | Cromwell |
| Lucas, A. C. | Castle |
| Kennedy, J. A. | Okemah |
| Keys, R. | Okemah |
| Moyse, A. J. L. | Castle |
| Nye, L. A. | Okemah |
| Pemberton, J. M. | Okemah |
| Preston, J. R. | Weleetka |
| Preston, T. R. | Weleetka |
| Spickard, L. J. | Okemah |
| *Stephenson, A. J. | Okemah |
| Yeats, H. Wesley | 208 Weaver Bldg., Okla. City |

OKLAHOMA COUNTY

| | |
|----------------------|--------|
| Flesher, Thomas | Edmond |
| Hunter, George | Wewoka |
| Lyon, Jas. I. | Edmond |
| Ruhl, A. M. | Edmond |
| Stone, S. N. | Edmond |

OKLAHOMA CITY

| | |
|---|------------------------|
| Akin, R. H. | Medical Arts Bldg. |
| Alford, J. M. | Medical Arts Bldg. |
| Allen, E. P. | 1200 No. Walker |
| Andrews, Lelia | 1200 No. Walker |
| Bailey, F. M. | 1219 W. 21st Street |
| Bailey, W. H. | 300 W. 12th |
| Baker, Marguerite | 900 E. 14th |
| Balyeat, R. M. | 1200 No. Walker |
| Barker, C. E. | 1200 No. Walker |
| Batchelor, John J. | Medical Arts Bldg. |
| Bates, C. E. | 519 Elks Bldg. |
| Berry, C. N. | Medical Arts Bldg. |
| Beyer, M. R. | 2006 West 39th |
| Binkley, J. G. | Medical Arts Bldg. |
| Blachly, C. D. | Medical Arts Bldg. |
| Blachly, L. S., State Health Dep't, Jacksonville Fla. | |
| Blesh, A. L. | 300 W. 12th |
| Boggs, Nathan | Perrine Bldg. |
| Bolend, Floyd | Medical Arts Bldg. |
| Bolend, Rex | Medical Arts Bldg. |
| Bondurant, C. P. | Medical Arts Bldg. |
| Borecky, Geo. L. | Medical Arts Bldg. |
| Bradley, H. C. | Perrine Bldg. |
| Branham, D. W. | 1200 No. Walker |
| Brewer, A. M. | Perrine Bldg. |
| Brittain, Fannie Lou | Medical Arts Bldg. |
| Brundage, Carl L. | Medical Arts Bldg. |
| Buchanan, Thos. A. | Amer. Nat'l Bank Bldg. |
| Butler, H. W. | 1200 No. Walker |
| Cailey, Leo | 720 E. 13th |
| Cates, Albert | Medical Arts Bldg. |
| Caviness, J. J. | 1200 No. Walker |
| Chase, A. B. | Colcord Bldg. |
| Christian, P. C. | 518 Elks Bldg. |
| Cloudman, H. H. | Medical Arts Bldg. |
| Clymer, Cyril E. | Medical Arts Bldg. |
| Coley, A. J. | Medical Arts Bldg. |
| Collins, H. Dale | Medical Arts Bldg. |
| Crawford, Paul H. | Medical Arts Bldg. |

*—Deceased.

Cunningham, S. R. Medical Arts Bldg.
 Daily, Henry J. Medical Arts Bldg.
 Davis, C. E. Medical Arts Bldg.
 Davis, E. P. Commerce Exchg. Bldg.
 Day, C. R. 1st Nat'l Bank Bldg.
 DeMand, F. A. Medical Arts Bldg.
 DePorte, S. Amer. Nat'l Bank Bldg.
 Dersch, W. H. Medical Arts Bldg.
 Dickson, Green K. 1200 No. Walker
 Dougherty, Virgil E. .. Gorei, Abyssinia, Africa
 Dowdy, T. W. Medical Arts Bldg.
 Duncan, Darrell G. Medical Arts Bldg.
 Early, R. O. Medical Arts Bldg.
 Earnheart, E. G., 1118 E. Rio Grande, El Paso, Tex.
 Edwards, R. T. Hales Bldg.
 Eastland, W. E. Medical Arts Bldg.
 Eley, N. Price Medical Arts Bldg.
 Erwin, F. B. Medical Arts Bldg.
 Eskridge, J. B., Jr. 1200 No. Walker
 Fagin, Herman Medical Arts Bldg.
 Ferguson, E. S. Medical Arts Bldg.
 Fishman, C. J. 132 West 4th
 Fitz, R. E., Taming, Fu Hoppi, Province N. China
 Foerster, H. A. Medical Arts Bldg.
 Fowler, W. A., 261 N. Canyon Drive Monrovia, Cal.
 Frierson, S. E. Medical Arts Bldg.
 Fuller, W. B. 2225 1-2 Exchange Ave.
 Fulton, Geo. Amer. Nat'l Bank Bldg.
 Garrison, Geo. H. 1200 No. Walker
 Gee, O. J. Medical Arts Bldg.
 Goldfain, E. 717 No. Robinson
 Goodwin, R. O. 1200 No. Walker
 Graening, P. K. Medical Arts Bldg.
 Gray, Floyd 1200 No. Walker
 Gray, J. Worth Huckins Estate Bldg.
 Gregory, M. S. Medical Arts Bldg.
 Guthrie, A. L. Medical Arts Bldg.
 Hall, Clark H. Medical Arts Bldg.
 Haney, A. H. Medical Arts Bldg.
 Harbison, Frank Terminal Bldg.
 Harbison, J. E. Terminal Bldg.
 Haskett, Paul E. 1st Nat'l Bank Bldg.
 Hatchett, J. A. Medical Arts Bldg.
 Hayes, Basil A. 1200 No. Walker
 Heatley, John E. Medical Arts Bldg.
 Hicks, Fred B. Medical Arts Bldg.
 Hinchee, G. W. 1415 West 34th St.
 Hirschfield, A. C. Medical Arts Bldg.
 Holliday, J. R. 1200 No. Walker
 Hooper, W. F. 1804 Linwood Blvd.
 Howard, R. M. 1200 No. Walker
 Howell, C. A. Perrine Bldg.
 Jacobs, Minard I. 947 West 13th
 Janco, Leon 10 West Park
 Jeter, Hugh 1200 No. Walker
 Jolly, W. J. Medical Arts Bldg.
 Jones, Hugh C. Medical Arts Bldg.
 Kelly, J. F. Medical Arts Bldg.
 Kelso, J. W. Medical Arts Bldg.
 Kernodle, Stratton E. 119 W. 5th
 Kuchar, V. Shops Bldg.
 Kuhn, John F. Medical Arts Bldg.
 Lain E. S. Medical Arts Bldg.
 LaMotte, Geo. A. Colcord Bldg.
 Langston, Wann 800 E. 13th
 Lawson, N. E. Medical Arts Bldg.
 Lee, Clarence Equity Bldg.
 Lehmer, E. E. 132 W. 4th
 Lewis, A. R. Shops Bldg.
 Lingenfelter, F. M. 1200 No. Walker
 Long, LeRoy Downing Medical Arts Bldg.
 Long, LeRoy Medical Arts Bldg.
 Long, Ross D. Medical Arts Bldg.
 Long, Wendell Medical Arts Bldg.
 Longmire, T. D. 322 1-2 N. Broadway
 Lowry, Tom S. 1200 No. Walker
 Lowry, Dick 1200 No. Walker

Love, Robt. S. Medical Arts Bldg.
 Margo, Elias 717 No. Robinson
 Martin, J. T. 1200 No. Walker
 Mathews, G. F. State Capitol Bldg.
 Miles, W. H. 203 City Hall
 Miller, N. L. Medical Arts Bldg.
 Mills, R. C. 203 City Hall
 Moore, C. D. Perrine Bldg.
 Moore, Ellis Medical Arts Bldg.
 Mooreman, Floyd 1200 No. Walker
 Moorman, L. J. 1200 No. Walker
 Moor, H. D. 800 E. 13th St.
 Moth, M. V. Amer. Nat'l Bk. Bldg.
 Mraz, J. Z. 300 W. 12th
 Murdoch, R. L. Medical Arts Bldg.
 Musick, E. R. Medical Arts Bldg.
 Musick, V. H. 217 1-2 So. "C"
 Mussil, W. M. Medical Arts Bldg.
 Myers, R. E. 1200 Walker
 MacCabe, R. S. Medical Arts Bldg.
 MacDonald, J. C. 300 West 12th
 McBride, Earl D. 717 No. Robinson
 McGee, J. P. Medical Arts Bldg.
 McHenry, D. D. Medical Arts Bldg.
 McHenry, L. C. Medical Arts Bldg.
 McLaughlin, J. R. Medical Arts Bldg.
 McNeill, P. M. Medical Arts Bldg.
 Nagle, Patrick Colcord Bldg.
 Newton, L. A. Medical Arts Bldg.
 Nunnery, E. E. 2531 1-2 So. Robinson
 O'Donoghue, D. H. 800 E. 13th
 Padberg, J. W. 1800 West 16th
 Parks, K. G. Medical Arts Bldg.
 Paulus, D. D. 300 W. 12th
 Penick, Grider Colcord Bldg.
 Phelps, A. S. Medical Arts Bldg.
 Pine, John S. Medical Arts Bldg.
 Postelle, J. M. 947 West 13th
 Pounds, C. M. 120 No. Walker
 Price, J. S. 1200 No. Walker
 Reck, John A. Colcord Bldg.
 Reed, Horace 1200 No. Walker
 Reichmann, Ruth S. Medical Arts Bldg.
 Riely, Lea A. Medical Arts Bldg.
 Riley, John W. 119 W. 5th
 Robinson, J. H. 300 W. 12th
 Roddy, John A. Medical Arts Bldg.
 Roland, M. M. Medical Arts Bldg.
 Rolater, J. B. Cave Springs, Ga.
 Rosenberger, F. E. Security Bldg.
 Rountree, C. R. 1200 No. Walker
 Rucks, W. W. 300 W. 12th
 Runkle, R. E. 300 W. 12th
 Sackett, L. M. Perrine Bldg.
 Salomon, A. L. 1200 No. Walker
 Salsbury, C. R. 200 East 14th
 Sands, A. J. Medical Arts Bldg.
 Sanger, F. A. Cotton Grain Exch. Bldg.
 Sanger, F. M. Cotton Grain Exchange
 Sanger, W. M. Cotton Grain Exch. Bldg.
 Shelton, J. W. Medical Arts Bldg.
 Shuler, A. C. Colcord Bldg.
 Smith, Delbert, G. 203 City Hall
 Smith, L. L. 234 West G
 Smith, M. Mid-Continent Life Bldg.
 Snow, J. B. 1200 No. Walker
 Starr, N. S. Medical Arts Bldg.
 Starry, L. J. 1200 No. Walker
 Stephenson, J. C. 800 E. 13th
 Stout, M. E. 209 W. 13th
 Strader, S. E. Medical Arts Bldg.
 Strother, S. P. Medical Arts Bldg.
 Sullivan, Ernest Medical Arts Bldg.
 Sullivan, Elijah S. Medical Arts Bldg.
 Syfert, A. C. Perrine Bldg.
 Tabor, Geo. R. Amer. Nat'l Bank Bldg.
 Taylor, C. B. Medical Arts Bldg.

| | |
|-------------------------|---------------------------|
| Taylor, W. M. | 1200 No. Walker |
| Todd, H. Coulter | Colcord Bldg. |
| Townsend, C. W. | Medical Arts Bldg. |
| Trice, Spencer T. | 2505 1-2 South Robinson |
| Turner, H. H. | 1200 No. Walker |
| Turanger, J. M. | 801 East 13th |
| Underwood, E. L. | 1st Nat'l Bk. Bldg. |
| Vahlberg, E. R. | Perrine Bldg. |
| Von Wedel, Curt | Colcord Bldg. |
| Wails, T. G. | Medical Arts Bldg. |
| Wallace, W. J. | Medical Arts Bldg. |
| Warmack, J. C. | Colcord Bldg. |
| Weir, M. W. | Colcord Bldg. |
| Wells, Eva | Medical Arts Bldg. |
| Wells, W. W. | Medical Arts Bldg. |
| Westfall, L. M. | Medical Arts Bldg. |
| West, W. K. | 1200 No. Walker |
| White, A. W. | Medical Arts Bldg. |
| White, Oscar R. | 1200 No. Walker |
| Wildman, S. F. | Medical Arts Bldg. |
| Williamus, H. M. | Medical Arts Bldg. |
| Williamson, W. H. .. | Capitol Hill Bldg. & Loan |
| Wilson, E. C. | Medical Arts Bldg. |
| Wilson, K. J. | Medical Arts Bldg. |
| Wolf, John Powers | 1200 No. Walker |
| Wright, Harper | 217 1-2 West C |
| Yeakel, E. L. | Medical Arts Bldg. |
| *Young, A. D. | 1200 No. Walker |
| Young, A. M. | Perrine Bldg. |

OKMULGEE COUNTY

| | |
|-------------------------------------|------------|
| Alexander, Lin | Okmulgee |
| Alexander, T. C. | Okmulgee |
| Bollinger, I. W. | Henryetta |
| Boswell, H. D. | Henryetta |
| Carlson, T. C. | Morris |
| Carnell, M. D. | Okmulgee |
| Cook, C. H. | Beggs |
| Cott, W. M. | Okmulgee |
| Edwards, J. G. | Okmulgee |
| Ferguson, J. B. | Okmulgee |
| Glismann, M. B. | Okmulgee |
| Hammonds, O. O., Medical Arts Bldg. | Okla. City |
| Holmes, A. R. | Henryetta |
| Hudson, W. S. | Okmulgee |
| Hughey, A. G. | Dewar |
| Kilpatrick, G. A. | Henryetta |
| Leslie, S. B. | Okmulgee |
| Matheney, J. C. | Okmulgee |
| McKinney, G. Y. | Henryetta |
| Milroy, J. A. | Okmulgee |
| Ming, C. M. | Okmulgee |
| Mitchener, W. C. | Okmulgee |
| Mooney, R. | Henryetta |
| Moore, G. C. | Ponca City |
| Nelson, J. P. | Schulter |
| Rains, H. L. | Okmulgee |
| Randell, D. M. | Okmulgee |
| Randall, H. O. | Okmulgee |
| Rembert, J. J. C. | Okmulgee |
| Robinson, J. C. | Henryetta |
| Rodda, E. D. | Okmulgee |
| Sadler, F. E. | Henryetta |
| Sanderson, W. C. | Henryetta |
| Shelton, T. H. | Okmulgee |
| Simpson, N. N. | Henryetta |
| Stark, W. W. | Okmulgee |
| Torrance, L. B. | Okmulgee |
| Vernon, W. C. | Okmulgee |
| Wails, J. O. | Okmulgee |
| Wallace, V. M. | Morris |
| Watson, Fred S. | Okmulgee |
| Watson, W. S. | Okmulgee |
| Widener, Dean | Okmulgee |
| Windham, L. B. | Okmulgee |

*—Deceased.

OSAGE COUNTY

| | |
|--|--------------------------|
| Aaron, W. H. | Pawhuska |
| Alexander, E. T. | Barnsdall |
| Barritt, R. J. | Pawhuska |
| Caton, C. N. | Wynona |
| Chase, W. W. | Barnsdall |
| Colley, T. J. | Hominy |
| Day, C. H. | Pawhuska |
| Dozier, B. E. | Webb City |
| First, F. R. | 713 Mayo Bldg., Tulsa |
| Garrison, G. I. | Fairfax |
| Goss, G. W. | Pawhuska |
| Govan, T. P. | Pawhuska |
| Guild, C. H. | Shidler |
| Gunter, J. T. | Barnsdall |
| Karasek, M. | P. O. Box 343, Shidler |
| Keyes, E. C. | Shidler |
| Lipe, E. N. | Fairfax |
| Logan, C. K. | Hominy |
| Mumins, Ira | Hominy |
| Neale, Q. B. | Pawhuska |
| Price, Aaron S. | 136 Waverly Place, N. Y. |
| Reed, J. M. | Fairfax |
| Rust, M. E. | Pawhuska |
| Shoun, J. G. | Fairfax |
| Stanbro, G. E. | Pawhuska |
| Sullivan, B. F. | Barnsdall |
| Summers, H. L., 204 Public Square, Marion, Ill. | |
| Walker, G. I. | Hominy |
| Walker, Roscoe | Pawhuska |
| Williams, C. W. | Pawhuska |
| Williams, L. C., 402-05 Osler Bldg., Oklahoma City | |
| Worten, Divonis | Pawhuska |
| Wright, Herbert L., 309 E. 6th St., Pawhuska | |

OTTAWA COUNTY

| | |
|-----------------------------|--------------|
| Aisenstadt, E. Albert | Picher |
| Barry, J. R. | Picher |
| Butler, V. V. | Picher |
| Bradshaw, J. O. | Welch |
| Cannon, R. F. | Miami |
| Colvert, G. W. | Miami |
| Connell, D. L. | Picher |
| Cooter, A. M. | Miami |
| Chesnut, W. G. | Miami |
| Craig, J. W. | Miami |
| DeArman, M. M. | Miami |
| DeArman, Tom M. | Miami |
| DeTar, Geo. A. | Miami |
| Deans, F. R. | Miami |
| Dolan, W. M. | Picher |
| Garlington, E. F. | Cardin |
| Hampton, J. B. | Commerce |
| Harper, R. H. | Afton |
| Helm, F. P. | Miami |
| Hough, J. Walter | Miami |
| Jacobs, J. C. | Miami |
| Jacoby, J. S. | Commerce |
| Laughon, W. I. | Picher |
| Lightfoot, J. B. | Miami |
| Mabry, E. D. | Hockerville |
| Meriwether, F. V. | Miami |
| Miller, H. K. | Fairland |
| Moon, J. T. | Miami |
| McCallum, Chas. | Quapaw |
| McLelland, C. A. | Miami |
| McNaughton, G. P. | Miami |
| O'Kelley, F. M. | Picher |
| Pinnell, General | Miami |
| Phillips, I. | Picher |
| Prowell, J. W. | Kansas |
| Ralston, B. W. | Commerce |
| Ransone, J. T. | Miami |
| Rowley, W. T. | Clinton, Ky. |
| Russell, Richard | Picher |
| Shelton, E. W. | Miami |

| | |
|------------------------|-------------------------------|
| Sibley, W. A. | U. S. Vet. Bureau, Okla. City |
| Smith, W. B. | Miami |
| Taylor, G. W. | Quapaw |
| Troutt, L. W. | Afton |
| Williams, J. P. | Picher |
| Wormington, F. L. | Miami |

PAWNEE COUNTY

| | |
|-----------------------|-----------|
| Ballaine, C. W. | Cleveland |
| Beitman, C. E. | Skedee |
| McFarland, H. B. | Cleveland |
| Roberts, J. A. | Cleveland |
| Robinson, E. T. | Cleveland |

PAYNE COUNTY

| | |
|------------------------|------------|
| Adams, J. E. | Cushing |
| Beach, C. H. | Glenco |
| Cleverdon, L. A. | Stillwater |
| Davidson, W. N. | Cushing |
| Davis, Benjamin | Cushing |
| Graham, R. N. | Yale |
| Harris, E. M. | Cushing |
| Herrington, D. J. | Cushing |
| Holbrook, W. R. | Perkins |
| Hudiberg, C. L. | Stillwater |
| Hudson, W. B. | Yale |
| Love, T. A. | Cushing |
| Manning, H. C. | Cushing |
| Martin, J. F. | Stillwater |
| Mitchell, L. A. | Stillwater |
| Mitchell, P. S. | Yale |
| Mitchell, W. C. | Cushing |
| Perry, D. L. | Cushing |
| Roberts, R. E. | Stillwater |
| Richardson, P. M. | Cushing |
| Sexton, C. E. | Cushing |
| Shull, R. J. | Stillwater |
| Waggoner, R. E. | Stillwater |
| Wilhite, L. R. | Perkins |

PITTSBURG COUNTY

| | |
|--------------------------|-------------|
| Barton, V. H. | McAlester |
| Baum, F. J. | McAlester |
| Breedlove, J. C. | Quinton |
| Bright, J. B. | Kiowa |
| Browning, R. L. | Hartshorne |
| Brunson, C. J. | McAlester |
| Bunn, A. D. | Savanna |
| Bussey, H. N. | Pittsburg |
| Carlock, A. E. | Hartshorne |
| Chapman, T. S. | McAlester |
| Crews, J. W. | Atwood |
| Davis, J. E. | McAlester |
| Dorrough, Joe | Haileyville |
| Echols, J. W. | McAlester |
| George, L. J. | Stuart |
| Griffith, A. | McAlester |
| Hailey, W. P. | Haileyville |
| Harris, C. T. | Kiowa |
| Hudson, W. K. | Hartshorne |
| Johnston, J. C. | McAlester |
| Kies, Benj. B. | Hanna |
| Kilpatrick, Geo. A. | McAlester |
| Kuyrkendall, L. C. | McAlester |
| Lewellen, W. P. | Canadian |
| McCarley, T. H. | McAlester |
| Miller, F. A. | Hartshorne |
| Munn, J. A. | McAlester |
| Norris, T. T. | Krebs |
| Park, J. F. | McAlester |
| Pearce, C. M. | McAlester |
| Pemberton, R. K. | McAlester |
| Ramsay, W. G. | Quinton |
| Rice, O. W. | McAlester |
| Sames, W. W. | Hartshorne |

| | |
|--|---------------|
| Schlicht, J. C. | No. McAlester |
| Shankle, H. D., U. S. Vet's Service, Helena, Mont. | |
| Thomas, Ernest | Quinton |
| Wait, Will C. | McAlester |
| Watson, F. L. | McAlester |
| Welch, A. J. | McAlester |
| Willour, L. S. | McAlester |
| Williams, C. O. | McAlester |
| Wilson, Herbert A. | McAlester |
| Wilson, McClellan | McAlester |

PONTOTOC COUNTY

| | |
|---|-----------------------|
| Breckenridge, N. B. | Merida, Yucatan, Mex. |
| Breco, J. G. | Ada |
| Brydia, Catherine T. | Ada |
| Canada, E. A. | Ada |
| Castberry, R. T. | Ada |
| Craig, J. R. | Ada |
| Cummings, I. L. | Ada |
| Dawson, B. B. | Ada |
| Dean, W. F. | Ada |
| Fuller, T., 129 1-2 W. Grand, Oklahoma City | |
| Gee, R. L. | Ada |
| Johnson, L. S. | Snomac |
| King, R. F. | Ada |
| Lane, W. H. | Ada |
| Lewis, M. L. | Ada |
| Lewis, E. F. | Ada |
| McKeel, S. A. | Ada |
| McNew, M. C. | Ada |
| Needham, C. F. | Ada |
| Ross, S. P. | Ada |
| Rutledge, J. A. | Ada |
| Sugg, A. F. | Ada |
| Threlkeld, W. R. | Ada |
| Welbourn, O. E. | Ada |
| Webster, M. M. | Ada |

POTTAWATOMIE COUNTY

| | |
|---|--------------------|
| Anderson, Robt. M. | Shawnee |
| Applewhite, Gardner H. | Shawnee |
| Baker, McKenzie, A. | Shawnee |
| Ball, W. A. | Wanette |
| Baxter, Geo. S. | Shawnee |
| Bradford, Walter C. | Shawnee |
| Blount, W. T. | Maud |
| Byrum, Jas. M. | Shawnee |
| Campbell, Hiram G. | Shawnee |
| Carson, F. LeRoy | Shawnee |
| Cordell, U. S. | MaComb |
| Culbertson, Rowland R. | Mand |
| Cullum, J. E. | Earlsboro |
| Douglas, R. A. | Konawa |
| Dresbach, H. V. | Earlsboro |
| Fortson, J. L. | Tecumseh |
| Gallaher, F. Clinton | Shawnee |
| Gallaher, Wm. M. | Shawnee |
| Gaston, John I. | Shawnee |
| Gillick, David W. | Shawnee |
| Gray, E. J. | Tecumseh |
| Hill, R. M. C. | McLoud |
| Hughes, J. Elmer | Shawnee |
| Kaylor, R. C. | McLoud |
| Marshall, J. W. | Shawnee |
| Mathews, W. F. | Earlsboro |
| McFarling, Alonzo C. | Shawnee |
| Morrison, H. C. | Maud |
| Newlin, Frances P. | Shawnee |
| Norvell, E. E., 128 1-2 S. 25th St. Oklahoma City | |
| Paramore, Chas. F. | Shawnee |
| Price, C. T. | Honey Grove, Texas |
| Rice, E. Eugene | Shawnee |
| Rowland, Tazewell D. | Shawnee |
| Royster, J. H. | Wanette |
| Sanders, Thos. C. | Shawnee |
| Scott, John Hugh | Shawnee |

| | |
|---|-----------|
| Shivers, Eraine | St. Louis |
| Stevens, Walter S. | Shawnee |
| Stooksbury, Jacob M. | Shawnee |
| Turner, Jas. H., Cumb'land Hosp., Brooklyn, N. Y. | |
| Wagner, Howard A. | Shawnee |
| Walker, John A. | Shawnee |
| Walker, Jos. E. | Shawnee |
| Williams, A. J. | McLoud |
| Williams, Alpha M. | Shawnee |

PUSHMATAHA COUNTY

| | |
|-----------------------|---------------|
| Ball, Ernest | Sulphur |
| Burnett, J. A. | Waldron, Ark. |
| Colby, G. B. | Darwin |
| Connally, D. W. | Clayton |
| Huckabay, B. M. | Antlers |
| Johnson, H. C. | Antlers |
| Lawson, John S. | Clayton |
| Patterson, E. S. | Antlers |
| Wyatt, S. B. | Antlers |

ROGER MILLS COUNTY

| | |
|---------------------|--------|
| Shaunty, J. N. | Hammon |
|---------------------|--------|

ROGERS COUNTY

| | |
|-------------------------|-----------|
| Anderson, F. A. | Claremore |
| Arnold, A. M. | Claremore |
| Bassman, Caroline | Claremore |
| Beson, C. W. | Claremore |
| Bushyhead, J. C. | Claremore |
| Collins, B. F. | Claremore |
| Hays, W. F. | Claremore |
| Howard, W. A. | Chelsea |
| Jennings, K. D. | Chelsea |
| Mason, W. S. | Claremore |
| Meloy, R. C. | Claremore |
| Smith, J. C. | Catoosa |

SEMINOLE COUNTY

| | |
|--------------------------|----------|
| Bates C. W. | Seminole |
| Bates, J. A. | Seminole |
| Beard, J. H. | Seminole |
| Black, W. R. | Seminole |
| Briggs, T. H. | Wewoka |
| Butler, O. C. | Seminole |
| Chambers, Claude S. | Seminole |
| Davis, John | Seminole |
| Deaton, A. N. | Wewoka |
| Fry, Melvin | Seminole |
| Geison, A. F. | Konawa |
| Hancock, A. R. | Seminole |
| Harber, J. N. | Seminole |
| Harrison, T. F. | Wewoka |
| Hartshorne, G. F. | Seminole |
| Hill, T. A. | Seminole |
| Huddleston, W. T. | Konawa |
| Kiles, H. A. | Konawa |
| Knight, W. L. | Wewoka |
| Long, W. J. | Konawa |
| Martin, W. S. | Wewoka |
| McAlester, E. R. | Seminole |
| McGovern, J. D. | Wewoka |
| Mills, J. T. | Sasakwa |
| Mills, N. W. | Snomac |
| Moore, W. L. | Sasakwa |
| Mosher, D. D. | Seminole |
| Price, J. T. | Seminole |
| Salzberg, B. A. | Seminole |
| Scott, T. A. | Bowlegs |
| Smith, J. H. | Seminole |
| Stephens, A. B. | Seminole |
| Stratton, F. L. | Seminole |
| Turlington, M. M. | Seminole |
| Vansandt, Guy B. | Wewoka |
| Walker, A. A. | Wewoka |
| Ware, T. H. | Seminole |

SEQUOYAH COUNTY

| | |
|--------------------|----------|
| Jones, S. B. | Sallisaw |
| Morrow, J. A. | Sallisaw |

STEPHENS COUNTY

| | |
|------------------------|----------|
| Bartley, J. P. | Duncan |
| Burnett, B. H. | Duncan |
| Caraker, C. T. | Duncan |
| Carmichael, J. B. | Duncan |
| Chumley, C. P. | Duncan |
| Garrett, S. S. | Duncan |
| Hall, P. B. | Marlow |
| Harrison, C. M. | Comanche |
| Ivy, W. S. | Duncan |
| Johnson, F. M. | Loco |
| Linzy, J. H. | Comanche |
| Long, D. | Duncan |
| McClain, W. Z. | Marlow |
| McMahan, A. M. | Duncan |
| Mullins, J. A. | Marlow |
| Nieweg, J. W. | Duncan |
| Overton, L. M. | Duncan |
| Pate, J. D. | Duncan |
| Patterson, J. L. | Duncan |
| Pruitt, C. C. | Comanche |
| Richards, C. C. | Marlow |
| Richardson, R. W. | Comanche |
| Russell, R. L. | Marlow |
| Salmon, W. T. | Duncan |
| Talley, C. N. | Marlow |
| Thomasson, E. B. | Duncan |
| Weeden, A. J. | Duncan |
| Williamson, S. H. | Duncan |

TEXAS COUNTY

| | |
|----------------------|------------|
| Hayes, R. B. | Guymon |
| Lee, D. S. | Guymon |
| Langston, W. H. | Guymon |
| Risen, W. J. | Hooker |
| Wilson, C. E. | Boise City |

TILLMAN COUNTY

| | |
|-------------------------|------------|
| Allen, C. C. | Frederick |
| Arrington, J. E. | Frederick |
| Bacon, Otis G. | Frederick |
| Childers, Jos. E. | Tipton |
| Collier, J. W. | Tipton |
| Comp, G. A. | Manitou |
| Davis, W. W. | Davidson |
| Fisher, Roy L. | Frederick |
| Foshee, W. C. | Grandfield |
| Fuqua, W. A. | Grandfield |
| Harris, H. C. | Grandfield |
| MacKeller, M. M. | Loveland |
| Osborn, Jr., J. D. | Tipton |
| Priestly, Fred G. | Frederick |
| Reynolds, J. C. | Frederick |
| Spurgeon, T. F. | Frederick |
| Wilson, H. H. | Frederick |
| Wilson, R. E. | Davidson |

TULSA COUNTY

| | |
|----------------------|--------------|
| Allison, T. P. | Sand Springs |
| Calhoun, C. E. | Sand Springs |
| Davis, J. B. | Sand Springs |
| Franklin, O. | Broken Arrow |
| Goddard, R. K. | Skiatook |
| Halm, F. S. | Sand Springs |
| Harris, Bunn | Jenks |
| Humphrey, B. H. | Sperry |
| Hutchinson, A. | Bixby |
| McLean, B. W. | Jenks |
| Lane, J. N. | Sand Springs |
| Laws, J. H. | Broken Arrow |
| Stemmons, J. M. | Collinsville |

Ward, H. P. Leonard
Wilks, F. M. Collinsville
Young, C. W. Cleveland
Zink, G. W. Red Fork

TULSA

Allen, V. K. 1001 Medical Arts Bldg.
Ament, C. M. 305 Ritz Bldg.
Anderson, E. R. 404 Medical Arts Bldg.
Anderson, J. R. 411 Medical Arts Bldg.
Armstrong, O. C. 811 Medical Arts Bldg.
Atchley, R. Q. 507 Medical Arts Bldg.
Atkins, Paul N. 1011 Medical Arts Bldg.
Barham, J. H. 314 New Daniels
Baum, E. E. 510 Medical Arts Bldg.
Beard, D. A. 510 Palace Bldg.
Beeseley, W. W. 510 Palace Bldg.
Beyer, J. Walter 501 Palace Bldg.
Billington, J. J. 404 Medical Arts Bldg.
Black, Harold J. 209 Medical Arts Bldg.
Blanks, Chas. L. 509 Palace Bldg.
Bolton, Fred 211 Medical Arts Bldg.
Boso, Fred M. Daniels Bldg.
Bradley, C. E. 202 Medical Arts Bldg.
Bradfield, S. J. 607 Medical Arts Bldg.
Brantley, Bernard L. 208 Medical Arts Bldg.
Braswell, J. C. 1109 Medical Arts Bldg.
Brogden, J. C. 708 Mayo Bldg.
Brookshire, J. E. 507 Palace Bldg.
Brown, Paul R. 517 Medical Arts Bldg.
Browne, Henry 615 Medical Arts Bldg.
Bryan, W. J. 801-6 Medical Arts Bldg.
Butcher, J. P. 204 Robinson Bldg.
Campbell, W. M. 1301 1-2 East 15th
Calhoun, W. H. 604 So. Cincinnati
Callahan, H. W. 902 Medical Arts Bldg.
Charbonnet, P. N. 206 Medical Arts Bldg.
Childs, J. W. 710 Medical Arts Bldg.
Childs, H. C. 710 Medical Arts Bldg.
Clinton, Fred S. 823 Wright Bldg.
Clulow, G. H. 208 Masonic Bldg.
Cohenour, E. L. 1102 Medical Arts Bldg.
Cook, W. Albert 1107 Medical Arts Bldg.
Coulter, T. B. 1011 Medical Arts Bldg.
Cronk, Fred Y. 801-6 Medical Arts Bldg.
Daves, Albert C. 417 Medical Arts Bldg.
Davis, Thos H. 404 Medical Arts Bldg.
Davis, Arthur H. 604 So. Cincinnati
Dean, W. A. 610 Medical Arts Bldg.
Denny, E. R. 804 Medical Arts Bldg.
Diffenbach, Nevin J. 708 So. Cincinnati
Dillon, C. A. 209 New Daniels Bldg.
Dunlap, Roy W. 808 Medical Arts Bldg.
Emerson, A. V. 212 Medical Arts Bldg.
Evans, Hugh J. 202 Medical Arts Bldg.
Farris, H. Lee 303 Medical Arts Bldg.
Farris, R. C. 1702 So. Quannah
Feehan, W. J. 807 So. Elgin
Felt, Roland A. Ritz Bldg.
Flanagan, O. A. 302 Medical Arts Bldg.
Flack, F. 822 Mid-Continent Bldg.
Flinn, Geo. W. 310 Medical Arts Bldg.
Ford, H. W. 608 Tulsa Trust Bldg.
Garabedian, G. 1235 So. Boulder
Garrett, D. L. 604 So. Cincinnati
Geissler, Paul 2224 So. St. Louis
Gilbert, Jas. B. 307 Roberts Bldg.
Glass, Fred A. 404 Medical Arts Bldg.
Goodman, Samuel 603 Medical Arts Bldg.
Gorrell, J. Franklin 610 Medical Arts Bldg.
Graft, Bennett 1702 So. Quannah
Graham, Hugh C. 1235 So. Boulder
Green, Harry 1116 Medical Arts Bldg.
Grosshart, Ross 517 Wright Bldg.
Hall, G. H. 420 McBirney Bldg.
Haralson, C. H. 816 Medical Arts Bldg.
Hart, Marshall O. 708 Medical Arts Bldg.
Hartgraves, Tom A. Morningside Hosp.
Haskins, F. M. 336 Richards Bldg.
Hawley, S. D. 1215 Atlas Life Bldg.
Henderson, F. W. 304 Medical Arts Bldg.
Henley, Marvin D. 911 Medical Arts Bldg.
Hoke, C. C. 901 Petroleum Bldg.
Holliday, O. M. 1744 E. 13th
Hooper, J. S. 317 Medical Arts Bldg.
Houser, M. A. 608 Tulsa Trust Bldg.
Huber, Walter A. 1114 Medical Arts Bldg.
Hudson, D. V. 305 Medical Arts Bldg.
Hughes, Lawson ... 216 1-2 W. "C" St. Okla. City
Jackson, L. T. 212 1-2 S. Main
Johnson, Chas. D. 1116 Medical Arts Bldg.
Jones, W. M. 204 Medical Arts Bldg.
Kennerly, H. Paul 902 Medical Arts Bldg.
*Kimmons, S. H. 725 So. Cinn.
Larrabee, W. S. 411 Medical Arts Bldg.
Lee, J. K. 211 Medical Arts Bldg.
LeMaster, D. W. 902 Medical Arts Bldg.
Lynch, T. J. 319 Philcade Bldg.
Lhevine, Morris 1007 Medical Arts Bldg.
Lowe, Jas. O. 319 Philcade Bldg.
Mangan, P. A. Box 1440
Margolin, B. 215 Medical Arts Bldg.
Marks, M. M. 305 Court Arcade Bldg.
Marshall, John C. 709 So. Jackson
Mayginnis, P. H. 315 Palace Bldg.
McAnnaly, W. F. ... Exchange Nat'l Bank Bldg.
McComb, L. A. 801-6 Medical Arts Bldg.
McDonald, D. M. 114 East 6th
McDonald, J. E. 807 Elgin
McGill, Ralph 1010 Medical Arts Bldg.
McGuire, Harry J. 1235 So. Boulder
McKellar, Malcolm 604 So. Cincinnati
McKenzie, Ian 915 Medical Arts Bldg.
Miller, Geo. H. 215 Atlas Life Bldg.
Miner, J. L. 114 East 6th
Mohrman, S. S. 611 New Daniels Bldg.
Murdock, Harry D. 1011 Medical Arts Bldg.
Murray, P. G. 506 Medical Arts Bldg.
Murray, S. 501 Medical Arts Bldg.
Myers, F. C. 302 Richards Bldg.
Neal, J. H. 301 Roberts Bldg.
Nelson, F. L. 614 New Daniels Bldg.
Nelson, M. O. 307 Medical Arts Bldg.
Nelson, I. A. 1917 So. Wheeling
Nesbitt, E. P. 917 Medical Arts Bldg.
Nesbit, P. P. 917 Medical Arts Bldg.
Northrup, L. C. 410 McBirney Bldg.
Norman, Geo. R. 17 1-2 No. Lewis St.
O'Connell, R. 209 Medical Arts Bldg.
O'Hern, C. D. 501 Medical Arts Bldg.
Osborne, George 801-6 Medical Arts Bldg.
Pavy, C. A. 812 Medical Arts Bldg.
Peden, Jas. C. 612 Medical Arts Bldg.
Perry, J. T. 417 McBirney Bldg.
Perry, M. L. 407 McBirney Bldg.
Perry, Sid 1107 Medical Arts Bldg.
Peterson, E. N. 823 Wright Bldg.
Pigford, A. W. 1001 Medical Arts Bldg.
Pigford, R. C. 1001 Medical Arts Bldg.
Presson, L. C. 902 Medical Arts Bldg.
Price, H. P. 407 Medical Arts Bldg.
Pruitt, W. V. 915 Medical Arts Bldg.
Reynolds, J. L. 701-702 Mayo Bldg.
Reynolds, J. M. 207 Atlas Life Bldg.
Rhodes, R. E. L. 509 Medical Arts Bldg.
Richey, S. M. 1304 1-2 W. 17th
Roberts, T. R. 2647 East 7th
Rogers, J. W. 407 Medical Arts Bldg.
Rogers, W. H. 505 New Daniels Bldg.
Roth, A. W. 607 Medical Arts Bldg.
Roy, Emile 608 Palace Bldg.

*— Deceased.

| | | |
|--------------------------|--------|--------------------------|
| Rushing, F. E. | 505 | Medical Arts Bldg. |
| Sabin, C. W. | 336 | Richards Bldg. |
| Searle, M. J. | 501 | Medical Arts Bldg. |
| Shepard, R. M. | 306 | Medical Arts Bldg. |
| Shepard, S. C. | 603 | Medical Arts Bldg. |
| Sherwood, R. G. | 208 | Masonic Bldg. |
| Showman, W. A. | 409 | Medical Arts Bldg. |
| Simpson, Carl F. | 301 | Medical Arts Bldg. |
| Sippel, Mary Edna | 801 | Medical Arts Bldg. |
| Sisler, Wade | 807 | So. Elgin |
| Smith, D. O. | 604 | So. Cincinnati |
| Smith, N. R. | 703 | Medical Arts Bldg. |
| Smith, Ruric N. | 703 | Medical Arts Bldg. |
| Smith, R. R. | 403 | Daniels Bldg. |
| Smith, R. V. | 607 | Medical Arts Bldg. |
| Springer, M. P. | 604 | So. Cincinnati |
| Stevenson, James | 615 | Medical Arts Bldg. |
| Stewart, H. B. | 1516 | E. 21st St. |
| Stewart, L. H. | | Roberts Bldg. |
| Summers, C. S. | 505 | New Daniels Bldg. |
| Trainor, W. J. | 1011 | Medical Arts Bldg. |
| Tucker, I. N. | 702 | Medical Arts Bldg. |
| Turrill, V. L. | 102 | 1-2 East 3rd |
| Thompson, Orion | 604 | So. Cincinnati |
| Underwood, David J. | 708 | Mayo Bldg. |
| Underwood, F. L. | 1001 | Medical Arts Bldg. |
| Venable, S. C. | 720 | Mayo Bldg. |
| Wainright, A. G. | 424 | McBirney Bldg. |
| Wall, G. A. | 902 | Medical Arts Bldg. |
| Wallace, J. E. | 914 | Medical Arts Bldg. |
| Watkins, F. L. | | Board of Education Bldg. |
| White, Daniel | 311 | Medical Arts Bldg. |
| White, N. S. | 404 | Medical Arts Bldg. |
| White, Peter Cope | 311 | Medical Arts Bldg. |
| Whittlesey, F. R. | 604 | So. Cincinnati |
| Wiley, A. Ray | 812 | Medical Arts Bldg. |
| Witcher, E. K. | 909 | Medical Arts Bldg. |
| Witcher, Robt. | 910 | Medical Arts Bldg. |
| Woods, C. J. | 511 | Medical Arts Bldg. |
| Zink, H. F. | 414 | Security Bldg. |
| Zink, Roy | 414-15 | Security Bldg. |

WAGONER COUNTY

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| Leonard, John D. | Wagoner |
| Plunkett, J. H. | Wagoner |

WASHINGTON COUNTY

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| Athey, J. V. | Bartlesville |
| Beechwood, E. E. | Bartlesville |
| Chamberlin, E. M. | Bartlesville |
| Crawford, H. G. | Bartlesville |
| Crawford, J. E. | Bartlesville |
| Crawford, T. O. | Dewey |
| Dorsheimer, G. V. | Dewey |
| Etter, F. S. | Bartlesville |
| Green, O. I. | Bartlesville |
| Hudson, L. D. | Dewey |
| Kingman, W. H. | Bartlesville |
| Kiser, J. D. | Bartlesville |
| LeBlanc, Wm. | Ochelata |
| Parks, S. M. | Bartlesville |
| Rammel, W. E. | Bartlesville |
| Rewerts, F. C. | Bartlesville |
| Shipman, W. H. | Bartlesville |
| Smith, J. G. | Bartlesville |
| Somerville, O. S. | Bartlesville |
| Staver, B. F. | Bartlesville |

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| Tillison, C. K. | Ramona |
| Torrey, J. P. | Bartlesville |
| Vansant, J. P. | Dewey |
| Weber, H. C. | Bartlesville |
| Weber, Sherwell G. | Bartlesville |
| Wells, C. J. | Bartlesville |
| Woodring G. F. | Bartlesville |

WASHITA COUNTY

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| Baker, B. W. | Cordell |
| Bennett, D. W. | Sentinel |
| Bungardt, A. H. | Cordell |
| Gayman, B. R. | Foss |
| Freeman, I. S. | Rocky |
| Harms, J. H. | Cordell |
| Jones J. P. | Sentinel |
| Neal, A. S. | Cordell |
| Stoll, A. A. | Foss |
| Sullivan, C. B. | Colony |
| Tracy, C. M. | Sentinel |
| Weaver, E. S. | Cordell |
| Webber, A. | Bessie |

WOODS COUNTY

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| Ames, Howard B. | Alva |
| Bilby, Geo. N. | Alva |
| Bowling, Jas. A. | Alva |
| Clapper, E. P. | Waynoka |
| Ensor, D. B. | Hopeton |
| Grantham, Elizabeth A. | Alva |
| Hale, Arthur E. | Alva |
| Hall, Ray L. | Waynoka |
| Hammer, John E. | Kiowa, Kansas |
| Hunt, Isaac S. | Freedom |
| Rodgers, L. O. | Alva |
| Rogers, Chas. L. | Dacoma |
| Saffold, Benj. W. | Freedom |
| Simon, Wm. E. | Alva |
| Smedley, Wm. H. | Capron |
| Templin, Oscar E. | Alva |
| Waite, Geo. R. | Kiowa, Kansas |

WOODWARD COUNTY

| | |
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| Brace, A. J. | Vici |
| Bagby, E. L. | Supply |
| Barber, J. J. | Laverne |
| Buckmaster, G. W. | Beaver |
| Camp, E. F. | Buffalo |
| Cockerill, H. S. | Mooreland |
| Darwin, W. C. | Woodward |
| Dixon, T. E. | Mooreland |
| Duncan, J. C. | Forgan |
| Forney, C. J. | Woodward |
| Hall, H. B. | Woodward |
| Hill, H. K. | Follett, Texas |
| Irvin, G. E. | Gage |
| Kerr, K. M. | Kansas City, Mo. |
| Leachman, T. C. | Woodward |
| Newman, O. C. | Shattuck |
| Nyland, G. A. | Gate |
| Patterson, F. L. | Woodward |
| Pierson, O. A. | Woodward |
| Rose, W. L. | Woodward |
| Silverthorne, C. R. | Woodward |
| Triplett, T. B. | Mooreland |
| Walker, H. | Rosston |
| Whiteacre, J. C. | Memphis, Tenn. |
| Williams, C. E. | Woodward |

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NUMBER 7

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MUSKOGEE, OKLAHOMA, JULY, 1930

NUMBER 7

PRESENT DAY TREND OF SURGICAL ANESTHESIA*

WM. PAT FITE, M.D.
MUSKOGEE

Of the two greatest advances in surgery in the past hundred years the introduction of anesthesia occupies probably an equal place with that of asepsis. Prior to the introduction of chloroform in 1831, of ether in 1842, and nitrous oxide in 1884, only the crudest attempts at anesthesia were practiced. These included such usages as chilling, the application of tourniquets, giving of opium, and administration of alcohol by mouth. Surgery for centuries was of necessity cruel and hurried, limited in its application, and incomplete in its accomplishment. Since the middle of the nineteenth century the hypodermic needle has been invented and cocaine introduced in 1879. The introduction of machines for administering nitrous oxide came in 1890. The first local anesthetic, cocaine, was brought out in 1879. Its application as a local anesthetic by injection was worked out by Halstead on himself in 1885. The much less toxic substance, novocain, was discovered by Einhorn in 1905, and has practically displaced cocaine as a local injection anesthetic. There have been great improvements in the various types of machines for the administration of the gases since the first machine used in 1890, so that at the present time as many as four or five gases and ether may be available off the same machine. Intratracheal anesthesia was introduced by Elsberg in 1909, rectal ether anesthesia by Gwathmay in 1913, and synergistic anesthesia by him also in 1923. Until the introduction of ethylene by Lockhard in 1923, nitrous oxide, the only inorganic member of the anesthetic group, was the only gas anesthetic available. Since attention was called to ethylene, experiments with acetylene have proven that it is also a satisfactory anesthetic. In the past two years two ad-

ditional members have been added to the available anesthetic group, sodium amytal (sodium-iso-amylethyl-barbiturate), and avertin or E-107 (tribromomethyl alcohol). The introduction of carbon dioxide for stimulation of the respiratory center during the administration of the gases has greatly facilitated their use as it is an effective means of combating the anoxemia often seen in their administration. Medicine being an incomplete science the search for the ideal anesthetic is sure to continue.

The history of our present day anesthetics reads like a romance. Chloroform was discovered by three different individuals in different parts of the world simultaneously. The anesthetic properties of ether were discovered accidentally when it was found that those under its influence were insensitive to pain. Crawford W. Long, sensing its possibilities as an anesthetic, first used it as such in surgery.

The first user of nitrous oxide for anesthesia, committed suicide following the death of a patient upon whom nitrous oxide had been used.

The physician first introducing spinal anesthesia, did so with a solution of cocaine accidentally, in the course of an operative procedure. Not realizing the importance of his observation, it remained for others to develop the use of spinal anesthesia, clinically.

The anesthetic qualities of ethylene became known following the investigation as to why flowers in certain hot-houses heated by gas, drooped instead of growing properly. These investigations disclosed the causative agent to be ethylene. This led to experiments upon animals which proved it to be an effective anesthetic and from this point it was but a step to its application to human surgery. The kindred gas, acetylene, was also found to have similar anesthetic properties.

The barbiturates were experimented with, upon animals, for four or five years before first being used upon man by Zer-

*Oration delivered before the General Meeting, Shawnee, May 28, 1930.

fas and McCallum two years ago, and avertin was first given by mouth in the treatment of whooping-cough and later given by rectum for the same purpose, before its anesthetic properties were discovered.

For many years chloroform was a much more widely used anesthetic than at present, but due to its marked toxic action upon the circulatory system and the liver, it has been practically discarded in many parts of the world. For a long time it was maintained that it did not carry the same danger in childbirth as in other types of cases. This has been definitely disproved. Upon the Continent and the British Isles it is used alone or in combination with alcohol and ether in what is known as the A. C. E. mixture. According to press reports, the recent operations performed upon King George of England were done under chloroform anesthesia.

Ether, at the present day is still the most widely used and the most universally applicable general anesthetic. It produces an almost ideal anesthesia, and lends itself to several forms of practical administration, open drop, colonic, as ether vapor in conjunction with various gases, and as ether vapor, alone, in intratracheal anesthesia. It is, however, a definite lung irritant, has definite toxic effect upon the liver, and is a vaso-constrictor in the kidneys. Its administration is, in a high percentage of cases, followed by nausea and depression extending over hours and sometimes days. Its inhalation is unpleasant to the patient, and as induction requires several minutes, these factors form a decided obstacle to its use. Recent experiments have shown that its administration causes a reversal of the potassium and calcium index of the blood, and this in itself may account for some of the bad effects of ether as an anesthetic. In such cases it would seem that Fischer's solution would be better to use than normal saline.

The use of nitrous oxide, except for very short anesthetics, was never very popular until oxygen was administered simultaneously. Since the various machines for the use of gases have been developed and carbon dioxide has been added as a respiratory stimulant, the troublesome anoxemia has been markedly reduced.

With the introduction of ethylene, the use of nitrous oxide was greatly curtailed, but since it has become widely known that

ethylene is an explosive gas, there is an increasing tendency to the use of nitrous oxide as it is non-explosive.

With ethylene, as with nitrous oxide, the period of induction is brief, and associated with very little unpleasantness to the patient. The return to consciousness after the use of ether gas is immediate. There is generally a period of nausea in the brief time of recovery. Occasionally this will last for several hours. It is almost never serious. Neither of these gases have any demonstrable effect upon the lungs, liver or kidneys. There is evidently a greater tendency to bleed under ethylene anesthesia than under any other anesthetics used at present. Both gases have the disadvantage of producing insufficient muscular reaction. This is especially a handicap in abdominal surgery. Patients stand prolonged operative procedures under ethylene remarkably well, and practically no perspiring is noticed.

Acetylene has almost identical anesthetic properties with ethylene. Its administration is followed by a moderate rise in blood pressure. It is being tried out in various places in both this country and abroad and seems especially adapted to thoracic surgery. It is explosive, as is ethylene, and there is considerable difficulty in obtaining the pure gas at the present time.

The latest innovation in the use of the gases is the placing of a cannister containing soda-lime between the mask and the re-breathing bag for the removal of CO₂. By this means the amount of gas consumed is reduced approximately nine-tenths. The patient requires a little closer watching. The economy is obvious.

With the introduction of novocain, with its markedly reduced toxicity over that of cocaine, the latter has been almost completely replaced as an injection anesthetic. However, cocaine is a far superior anesthetic for surface application. During and following the World War there was a distinct extension of the use of local anesthesia in all of its applications—conduction, field-block, infiltration and spinal. The use of local anesthesia is far more exacting upon the surgeon than that of the general anesthetics. Its comprehensive use presupposes a rather intimate knowledge of the peripheral nervous system and of the anatomy and functions of the autonomic system. The method of application varies with the pathological conditions

present and the anatomy of the part operated upon. At times considerable ingenuity and maneuvering have to be resorted to. All this represents quite a departure from the usual operative procedures under a general anesthesia. Gentleness and an unhurried technique are paramount. As a consequence, it takes considerable experience for even an experienced surgeon trained to operate under a general anesthesia to become adept in its use under all conditions in which it is indicated.

Local anesthesia, exclusive of spinal, is the safest anesthesia that we have and many conditions presenting severe risks under any form of general anesthesia, can be operated with comparative safety by this means. A high percentage of minor surgery should be done under local anesthesia, as the expense, inconvenience and morbidity of the general anesthetics can be done away with. In the past decade, many hospitals and clinics are doing from thirty-five to ninety percent of their surgery under this form of anesthesia. At the present time, in the largest general hospital in Oklahoma, in which none but adults are treated, more than ninety percent of all surgical procedures are performed under some form of local anesthesia. The reduction of morbidity particularly, is remarkable, and the cases require a minimum of nursing care.

Within the past four years there has been a noticeable re-awakening of interest in spinal anesthesia. This has been brought about by general interest in local procedures, by increased knowledge of the physiology of the sympathetic nervous system, by the introduction of novocain solutions with decreased diffusibility that have a specific gravity less than or greater than that of spinal fluid, the accumulation of data which show this to be a safe anesthetic when used with understanding and proper recognition of its contra-indications and by the introduction of ephedrine sulphate. Its use produces ideal conditions for operations below the diaphragm. This much is certain, that no surgeon should use spinal anesthesia unless he understands all the physiologic phenomena involved, and has a properly trained operating team to combat untoward reactions should they result. It is not an anesthetic to be used casually and the user must be able to estimate the circulatory resiliency of his patient.

Sodium amytal (sodium-iso-amylethyl-barbiturate) since its introduction has been having a thorough investigation in many places as a general anesthetic. Some surgeons are quite enthusiastic over it, while the enthusiasm of others is not so pronounced. From the standpoint of the patient it is a pleasant anesthetic. Its introduction is intravenous in aqueous solution. The patient goes to sleep quietly without any disagreeable sensation and is in a somnolent state for twelve to thirty-six hours afterward depending upon the individual and the amount of drug used. There is seldom any post-operative nausea, and they have passed through the chief period of post-operative pain before they are sufficiently awake to suffer. On the other hand, there is considerable variability of the amount of anesthesia obtained and relaxation is incomplete as a general rule. As a consequence, local or inhalation anesthetics have to be used in addition. This is a valid objection in abdominal surgery. It in no way limits shock and there is a tendency in debilitated cases to develop pulmonary oedema. These patients require close attention until they are completely conscious as there is occasionally a period of excitement approximating delirium during the hours that the hypnotic effect is passing off. The present indications are that sodium amytal as a general anesthetic will have a definite but limited field and that its chief use will be that of a basal anesthetic, some other agent — one of the gases, local or ether — being necessary in addition for sufficient relaxation. Very little is known at present as to its physio-chemical actions in the body except that it is apparently non-toxic to the kidneys and liver and is not a respiratory irritant. Smaller doses of amytal or luminal are being used for pre-operative hypnosis and as a means of lessening the spasmodic effects of novocain sometimes seen. By the use of the barbiturates the body can stand three or four times the ordinary dose of novocain without ill effect.

Practically contemporaneous with sodium amytal, avertin, (tribromethyl alcohol), was introduced abroad. Particularly within the last year it is being used in this country. It may be given intravenously or per rectum. The latter method is the one of choice. These patients become unconscious without unpleasant sensations in about ten minutes following an anesthetic dose into the rectum, and do not regain

consciousness for about eight hours. It is not very soluble in water and the temperature must be around forty degrees centigrade. If raised to forty-five degrees centigrade or above, it is decomposed into dibromacetaldehyde which is very irritating to the mucous membrane of the bowel. It is detoxicated in the body by combination with glycuronic acid in the liver and is excreted by the kidneys, hence marked renal disease and hepatic disease may be regarded as contra-indications to the use of the drug, as the mechanism of detoxication and excretion may be deranged. The chief dangers are circulatory disturbances characterized by fall in blood pressure and injury to the respiratory center. Carbon dioxide is contraindicated as the respiratory center does not respond to its use and instead may be completely suffocated. The fall in blood pressure must be combated by peripheral stimulation with ephedrin or adrenalin. No antidote is known at present, consequently the technique must be accurate. Like sodium amytal it seldom gives sufficient relaxation and must also be best considered a basal anesthetic to be supplemented by something else. It would seem to be indicated chiefly in surgery about the face, neck and head.

Many terms referring to anesthesia have come into use in the last two decades, twilight sleep, anoci-association, synergistic anesthesia, sequence anesthesia and balanced anesthesia. All are expressive and denote different ideas. Another might be added—selective anesthesia—as surgical anesthesia is fast resolving itself into the selection of the anesthetic best fitted to the individual case.

Combinations of anesthetics are often necessary, for mechanical and psychic reasons. The result of the introduction of the newer agents and their accessories, has been a marked diminution in mortality and morbidity. But their use brings to the surgeon an increased responsibility as in most places he is the one who must make the choice, and usually administers or has administered under his directions, the agents that are not inhalation anesthetics. It must be remembered that in the intravenous, intraspinal and rectal anesthetics definite quantities of the drug are administered and none can be taken away, therefore great care should be exercised that an overdose is not given. The inhalation anesthetics, on the other hand, can be varied to any extent.

The surgeon desiring to make use of all of the anesthetics now available must study the action of each independently. Furthermore, the use of most of them should be confined to institutions. Ether, in spite of its drawbacks, is the safest anesthetic in casual hands, as there is very little danger of any immediate ill effects. Even a novice can give a fairly good ether anesthesia. With the other forms of anesthesia the ill effects are usually immediate and may be fatal, unless their use, dosage and reactions are well understood.

SOME DON'T'S IN EYE, EAR, NOSE AND THROAT WORK*

D. D. MCHENRY, M.D.
OKLAHOMA CITY

When Doctor Thompson asked me to give this address representing the Eye, Ear, Nose and Throat Section, I accepted it for one main reason.

I have wanted for several years to call to the attention of the general medical profession of this State the evils of the practice of giving patients cocaine solution to use in their eyes at home. All busy oculists have from one to several cases each year, where many times more damage was done to the eye by cocaine than by the original condition for which the cocaine was given.

It is probably most often given for slight abrasions of the cornea or for slight wounds after the removal of imbedded foreign bodies. In either case a small piece of epithelium was removed from the cornea, which, as you know, exposes the most sensitive nerves of the body. A little cocaine relieves the pain temporarily. Often the cocaine was used during the removal of the foreign body, which was certainly wise and proper. But after the effects are gone the lid brushes over the corneal wound and it soon begins to hurt, the patient complains and often asks for some of that medicine you put in his eye. It is given to him and he is told to use it every 3 to 6 hours. What happens? The cocaine soon softens the epithelium around the little wound and it begins to peel. That uncovers more sensitive nerves, makes more pain, and the patient puts in more cocaine. This of course causes more epithelial softening, more peeling and

*Oration delivered before General Meeting, Shawnee, May 28, 1930.

more pain and we have a vicious circle. This sometimes goes on until the whole cornea is denuded of epithelium.

The unprotected cornea, like any tissue which loses its skin or mucous membrane covering, is very easily infected and an infected corneal ulcer perhaps involving the whole corneal surface may develop. Infected ulcers mean scars. Scars over the center of the cornea mean defective vision and if the scar involves the entire surface of the cornea there will be complete loss of useful vision. So, trivial conditions, from the use of a cocaine solution plus infection, may end in a lost eye.

After the removal of a foreign body from the eye the instillation of a little bland oil or better still a mild antiseptic ointment like 2% iodoform, and a bandage will protect it from the winking eyelid and from infection. The epithelium will regenerate in 24 to 48 hours in the great majority of cases. Occasionally, it is necessary to put both eyes at rest with bandages for 24 hours, to obtain relief from pain. But that even is much better than giving the patient cocaine to use and so endangering his future vision.

If a small wound becomes infected where we do not have the continued use of cocaine solution, the scar will be limited to the size of the wound unless it is a very virulent infection. Then, unless the scar is directly over the center of the cornea there will be no practical loss of vision.

In ulcers of the cornea from any cause the continued use of cocaine will often cause the same damage as described above.

In the deeper inflammations of the eye cocaine will not relieve the pain so it is not used as much as in the corneal infections.

Do not give patients cocaine solutions to use in their eyes at home under any consideration. I cannot conceive of a condition where this is justifiable. If the pain cannot be relieved by bandage, bland ointment and rest, it will be much safer and better to give this patient opiates. For if the eye condition is one that will not be relieved, except by the patient using cocaine at home, you have a condition that should be in the hands of an oculist.

We are often asked by the general men what class of eye injuries or diseases, are safe for them to care for and which ones they should immediately send to an oculist.

ist. That is a very hard question to answer. It depends on the man. Some general men have an excellent knowledge of eye diseases, others very little. There is no question whatever, but that the general man with an average knowledge of eye diseases can take care of most of the minor conditions.

Two things he should not try to handle. One is glaucoma which often goes on to destruction, even though managed by the knowledge and skill of the best oculists.

I think all practitioners practicing in a town where there is not a good oculist should thoroughly acquaint themselves with the symptoms of both acute and chronic glaucoma as found in any standard text book. Then if a diagnosis is made or there is even a strong probability of a diagnosis of glaucoma, it should be sent to an oculist.

The other eye condition which should be immediately turned to an oculist is the perforating eye injury, either with a foreign body retained in the eyeball, or where the injury involves the ciliary body (or danger zone) without a retained foreign body. The danger zone is the 1-4 inch surrounding the limbus, or outer border of the cornea. Injuries in this region usually involve the ciliary body and often bring on the plastic form of iridocyclitis, which is the exciting condition that causes sympathetic ophthalmia in the other eye. That again is a condition which taxes all the knowledge of a good oculist to determine how long it is safe to retain the injured eye. There is nothing more sad than to see an injured blind eye retained so long that the good eye is lost by sympathetic trouble. Perforating injuries that do not wound the ciliary body are not often dangerous to the other eye. These may often very safely be treated by the general man. Many of them, however, end with loss or much defect of vision. An eye with a retained intraocular foreign body is another large problem for a trained oculist. Most of such eyes will be lost but a per cent may be saved by proper care.

Another condition that is often mismanaged by general men is fractures of the nose. The bony frame work of the nose as you remember is very thin. When fractured it is very easy for the broken bones to override each other and allow the nose to be depressed, sunken or displaced laterally.

The effort is often made to raise the

depressed fragments by packing the nose with gauze or cotton. This fails in most all cases. It may be necessary in some cases after the fracture is reduced to put a light packing inside the nose to hold the fragments in place. But these fragments must be reduced before there is any chance whatever of an intra-nasal packing being of value. Excepting that it occasionally may be necessary to stop hemorrhage.

The same principle of reducing an overriding fracture in the bones of the nasal frame work must be used as it is used in reducing fractures any place. Namely, sufficient extension to allow these overriding bones to resume their normal position

We use a thin piece of metal with a handle. The end going into the nose shaped much like the handle of a scalpel, only a little thicker. I often used the handle of a knife wrapped with a little cotton to make it a little heavier and the blade wrapped with a larger piece of cotton to use as a handle, before I had this special instrument. After anesthetizing the nose well with cocaine, in adults, or under a general anesthetic in children, the above instrument is introduced into the nose with the right hand, using the left to palpate and mold the nose externally. Force is made upward at right angles to the bridge of the nose. Sufficient force is necessary to allow the overriding bones to be put in place. It often takes enough force to raise the patient's head from the table to get the edges of the bones past each other. This force must be straight upward from the under side of the bridge of the nose, most of it of course in the region of the fracture. After being reduced the bones will often stay in place and result in a perfect nose without anything further being done.

However, there is always great danger of a very slight trauma again displacing these fragments, so they should be protected. I use a form, made to fit each case, cut from a thin strip of copper, held on with adhesive strips. This form should not put any pressure on the top of the bridge of the nose. It may be necessary for it to be pressed against the side of the nose so as to act as a splint. As stated above it is also often necessary to put a plug high up inside to act as an inside splint. Many substances are used for such a pack. We use gauze sprinkled with subnitrate of bismuth and generally covered

with an exceedingly thin layer of rubber. A proper reduction of the fracture followed by even a small amount of care in protecting and holding the fragments in place will usually result in a good straight nose.

To emphasize a few of these don'ts.

If you are not an oculist:

1st. Do not try to treat perforating injuries of the eyeball through the danger zone or with a retained foreign body.

2nd. Do not treat glaucoma if you can get it to an oculist.

3rd. Do not try to reduce fractures of bones of the framework of the nose by intranasal packing.

4th. The thing I especially want to emphasize and do not want you to forget if you forget all else I have said, is: *Do not give a patient a solution of cocaine to use in their eyes at home under any condition whatever.*

—o—

PSYCHIATRY IN MEDICINE*

D. W. GRIFFIN, M.D.
NORMAN

I have never yet been able to quite understand that out of our several thousand members, many of them real orators, why I, the least qualified of all should be called upon for an oration on an important occasion of this kind; however, I felt it would give me an opportunity of presenting to our worthy profession some ideas of a better understanding of psychiatry in medicine.

I know many of our members today can very well recall the time in this new State of ours when we had no such thing as an organized profession of medical men, say nothing of the absence of hospitals of any sort or character. You will pardon me if I leave out of consideration all other classes of sick folks except the mentally sick for the moment because I know more of these kind of sick people.

Not until 1895, had there been any attempt to hospitalize our mental cases except as they were sent to a private institution at Jacksonville, Illinois.

During territorial days we scarcely had a place worthy of the name of a hospital for mental cases, but today, thanks to our

*Oration delivered before General Meeting, Shawnee, May 28, 1930.

taxpayers, I believe we can point with considerable pride to the fact that we have real hospitals for our mental cases, places where people are sent and where a real attempt is made to get the patient well and if not completely so at least get him back far enough that he can again become a partial breadwinner, but we are yet far from the "rainbows end." It is true we have made wonderful progress, but here the danger lies if we are going to be satisfied to just send our patients to our State hospitals for mental disorders and let it stop at that, then medicine to that extent is a failure. All too often do we, who have the management of these hospitals, see you send your patient down and then seem to lose all interest. Not so with your other sick people. You go with them as you should, but call up the next day and the next and so on, but all too often do we see that sick father or mother sent down in the hands of an officer, practically no medical history accompanying, when if the family physician, or a nurse would come along how different would be the story, what a different impression it would make on the patient, how much better chance for recovery. It has been, as many of you know, the very hardest thing in the world to get our own profession to accept whole heartedly psychiatry as a real part of medicine. Psychiatry is not a new, nor is it a separate branch of medicine. The noble minded Phillip Pinel (1745-1826), it was he who stood high in medicine as the first to treat the insane in a humane manner. At the risk of his own life and liberty he initiated the reforms of taking off their chains, placing them in hospitals under lenient physicians and doing away with abuse of drugging and blood letting to which they were subjected. In this regard he is the real founder of modern "open-door" school of psychiatry. His *Traite Medico-Philosoph Alienation Mental* (1803). Heinroths's book on *Insanity* (1818) and John Conolly on the *Treatment of the Insane without Mechanical Restraint* (1856). So psychiatry in medicine is not new, neither can we any more consider the psychologically sick now differing from that of other sick people. I don't know but just some how the mentally sick man has never been given a square deal by us as physicians. I think, however, this is excusable on the grounds that for so many, many years the psychological man was never considered by our medical school and, in some instances, yet left out of consideration altogether, but the time

has come when things are going to be different. I believe the time is here now, as some one has said, when for the next fifty years medicine will have more to say about the psychologically sick man than all other sorts of sick folks.

Now what do we as medical men of Oklahoma think about it? You perhaps are more or less familiar with the already over crowded condition of our hospitals. Scarcely a vacant bed, the demand for admission so great that we are twenty-five percent over crowded. Last year we received at Norman, 937 patients and before this year ends another thousand to account for and the same condition prevailing in the other two like institutions of our State.

The mental patients in State hospitals per 100,000 population increased from 63.7 per cent in 1880, to 221.4 in 1928. This is more than a threefold increase. Now some one may be prepared to say that at this rate of increase the whole world will in a few years become insane, but not so. It is true insanity is slightly on the increase, but not alarmingly so, but how do we account for the threefold increase in our hospitals? We will try to tell you briefly, it is largely due to the fact that we are modernizing our hospitals along the lines of other hospitals and the people are finding it out and therefore more ready to accept of the benefits of our hospitals.

Now all this leads up to another very vital medical consideration, just what is to become of the proposition. I don't know how much longer the taxpayers are going to carry the load. We can't build fast enough even if the taxpayers were able to put up enough money. It seems we must keep up our schools, we must not neglect the normal, the last legislature appropriated better than three million for the care of its mentally sick, and yet far from an adequate amount. Now what is the solution? I think New Jersey has just about hit at the solution, and it is what many of us have been advocating, I think we are fast coming to it. Now the New Jersey medical profession is ready to accept her mental cases in the same light and manner as other sick folks. What are they doing? It is this: they are preparing their hospitals all over the state, municipal, county, state and private, to accept mental cases, not in a wholesale manner, but intelligently going about it, and the thing I can't see is why it has not been

done long ago. The only hindrance has been ourselves that when a mental case is presented, get him off to the "asylum," he might kill some one, it would be dangerous to try to keep him in our already well regulated local hospitals.

I see coming into our State hospitals any day and every day case after case that should and could be taken care of and successfully treated and restored to his home without ever having to go through the ordeal of a court action. Your city and private hospitals have every facility in the world for a correct diagnosis and treatment. This I know would be out of consideration for some, but what about that toxic case; that case of pellagra and a host of others I could mention? The reason it has not been done and the only reason, can be laid at the door of our medical education. This thought leads to another suggestion, and I know if President Bizzell and Dean Long were here tonight they would welcome what I am about to say because I know they are in sympathy with it and it is this, just why is it we do not have right along with the other departments of our State University Hospital, a psychopathic department? The authorities are anxious for it and if the medical profession of this State want it they can have it. Here in this wonderful institution, with its highly technical equipment and strong faculty, you can see what an advantage to this class of sick people it would be, there they could go in the quiet of the day without a sheriff or policeman at their heel, go there for a scientific examination and treatment.

There again all interns would service this ward as they are required to do in other departments of medicine, these men would go out as familiar with psychiatry as other branches of medicine. This arrangement would by no means take the all important place of our present State hospitals, not at all. You can see, I'm sure, already, but when you are told that we have more mental cases in our State hospitals today than you have in all other hospitals of the State combined, I again say I believe the time is here now when we must consider the mentally sick as we do other sick folk.

Can you conceive of any sound medical reason why a mental case should not receive care at the hands of our medical profession and hospitals as other people, I don't believe you can.

I am not unmindful of the fact that

in dealing with this great problem of the proper care and consideration of our mental cases, it is one that not only concerns us as medical men, but on the other hand, we are all taxpayers as well, and from this latter let us see where we are. As previously stated, the last legislature of this State appropriated a sum equalling more than three million dollars. That sounds like a lot of money, and it is, and some one here might ask, as I have many times before, when and where is it going to end, and my very satisfying answer is never. This thing of mental diseases is going to travel right along at the same pace and speed as before. Oh, some may say let's try sterilization. I did not want to say anything about sterilization, but I feel I must because the thing is coming up all the time, every time a legislature comes around some well meaning man introduces a bill to try to enact a law whereby all the insane and criminals are to be sterilized, thinking perhaps that would be the solution. And you can't much blame the legislature if that would solve all the human ills, but we as medical men know very well that it will not. If you were to ask me as I have been many times, what I thought of the idea of sterilization, I would say well and good enough in certain very selective cases, but as a whole-sale proposition I am not in favor of it. In the first place, I would not know where to begin, and so long as the Great Ruler of the Universe continues to make us in the future as He has in the past, we will show the better part of wisdom to go very slow on this matter. We are not wise enough; our vision is yet too limited in the field of medical science. It is not scientific; it is not good medicine; it is not humane.

Then I don't know if we would be one whit better off if the whole field of mental disorders could be swept from the face of the earth. If growth is to continue, we must feed it with human sacrifice, if by the wave of the magic wand the whole path of man could be made smooth, nothing to hinder him in his rapid onward sweep, then what? Growth would cease. So I think we should not regard the small amount of money we spend in lifting up the sick, a burden, while on the other hand, it should appeal to us as a privilege, a means of growth. I do not want any one to go away from here conveying the idea that I am not heartily in favor of any scientific medical way of preventing disease, certainly I am, but to do it means

human sacrifice as well as money, and I am prouder every day that I am a member of a body of men who, when the occasion demands, are not only ready to give of their means, but as in the past, lay their bodies on the altar of sacrifice for their fellowman, if by so doing brings to our race better methods of the alleviation of pain and disease.

I do hope that every one here will go home with a more encouraging outlook on mental disease. The problems of our mental hospitals are your problems and you should know more about the workings of our hospitals. I think I can see a new day in medicine, I know that the time is not far distant when your mental cases will be looked upon in the same sympathetic way as we do all other cases. Of course, we will always have need for our State hospitals for mental disorders, and they will always be crowded in spite of the fact that thirty-five per cent make very definite recovery and never return again, and if we were not so crowded for the lack of room and more money and men to do with them, a very much larger percentage would get well. Then again a very large percentage of those who do not make complete recovery do get well enough to go home and live in fair comfort and again help, at least in a small way, in the family earnings.

But you will say you have pictured to us a rather dark future, you say there is nothing in sight to cut short the numbers; you are opposed to sterilization as a remedy, but then you know how we drove from our shores the plague, yellow fever and smallpox. We are all familiar with the works of that great physician, Lord Lister, how he looked upon the great mortality resulting from surgical pests as septicemia, pyemia, erysipelas, tetanus and hospital gangrene; how he went about clearing the field of surgery. He, like others, did it by the application of hard scientific medical facts, not by a fly-by-night popular idea here today and gone tomorrow.

I believe that just as soon as we as physicians are willing to accept psychiatry as a real and fundamental part of medicine we will then, and not until then, begin to cut down on the mortality of mental disorders, as we have other diseases. I believe we can do but little by legislating; human behavior has not yet been controlled by that means, though we all well know what education can and has

done for the human race. It took the world many, many centuries to throw from its feet the chain of ignorance and superstition, and it seems it was but yesterday when our unfortunate insane were liberated from those awful hands of superstition and darkness and through the open windows of human intelligence the warm sympathetic and healing rays of medicine allowed to enter.

We are making progress. We must not become discouraged, things for the better are happening every day, we have already seen brought from that far off shore an olive branch, and ere long a New World's discovery will be proclaimed and if some morning we wake up to the fact that perhaps one of our loved ones is approaching a mental breakdown, and if it comes let us be prepared to meet it as a medical problem as we do other medical problems and with the same intelligent manner of treatment.

I do not feel like leaving this subject without going further into some of the educational future which I think we as medical men are due our people, some things in the field of mental hygiene. The day I hope is not far distant when we will have on the faculty of our State schools of higher education, a full time psychiatrist. This suggestion is not new. Harvard, Yale, University of California, University of Chicago, and any number of private educational institutions have this arrangement, and in every instance it is working to the greatest advantage in the world, it is helping in so many, many ways. Not long since in talking with one of these men I was told that in his particular school every young man and woman entering was passed upon by the psychiatrist. It would be useless for me to attempt to go into detail, explain some of its advantages, they are all too well known, and from these schools it would be carried into our public schools and what a difference it would make. Then our teachers would be able to better understand certain behavior disorders in children, when it is yet time to do something about it. We who have to do with our State hospitals see all too many young boys and girls coming to us when it is too late.

We could go on and on, but must not, though as a parting observation when it is impossible to say all I would like in speaking of mental hygiene, let us say to our father and mother, be honest with

your children, give them a clean, healthy body. Heredity yes, but most important of all a clean, healthy environment, early responsibility, not burdensome, but honest endeavor. We know how the gunsmith goes rather to the hill top for his timber where the wood fiber has had the test of the storm, rather than to the green valley, beside the still brook. It takes responsibility not only to perfect us as human beings, but so must nations be saved.

And last, but not least, let us hope that the day may speedily come when we will have in all the larger communities of our State a Child's Guidance Clinic, not a place where a few people gather to read papers, make talks, etc., but the most important place where the children can be brought for careful scientific study, where if they have defects, it may be found out in time to do something about it. Now all this can only be taken as a suggestion, and without the utmost and hearty cooperation of our physicians can a movement of this kind be worked out. Let us realize if we can that no community is sufficiently safeguarded without a correlating mental hygiene clinic. I am almost persuaded to say that it is equally as essential to public health and welfare as our isolation wards for infectious and contagious diseases.

THE SIGNIFICANCE OF CERTAIN PHYSIOLOGIC FACTS IN SURG- ERY OF THE ABDOMEN*

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We are proud of the accomplishments of surgery during the past generation. Surgery has reached an epoch today in which so many things can be accomplished that were not done in years gone by that we justly feel very boastful of the achievements of surgery.

We have many recognized cases today in which the operation was beautifully performed, yet the patient died. The larger portion of our mortality today comes from conditions which were not recognized at the time of examination and diagnosis. We have largely conquered the once dreaded shock and hemorrhage that used to claim so many of our patients. As a result, the majority of our patients who die following an operation die with some

obscure toxic symptoms for which we are often unable to give an explanation.

Let me go back for just a few minutes into the history of surgery. First there was a long blank and a total absence of science. But even in the early days some surgery was done and done fairly well from what we can learn. Early in the history of Egypt trephine operations were being done. Long after the birth of Christ came the introduction of true science. It is amazing to think how long it was before we were willing to admit that we must study the whole body with which we have to work. Dissection was not practiced for a number of years and not until then did we begin to know anything about human anatomy. But surgery did not reach true science for a long time. We must also remember that in the earlier days before anesthetics were possible most operations which had to be done in the presence of pain had to be done very speedily. The surgeon of that period had to be familiar with anatomy and had to do his work exactly and with speed. Along with the study of human anatomy came the introduction of modern science, and it became possible to use the various tests which now aid in making a diagnosis.

It was found that by keeping the wounds clean and free from contamination and infection many things could be accomplished which hitherto had been impossible. Therefore many cavities and many regions began to be explored which had been unknown at any time hitherto. I remember when the first appendix operation was done in Kansas City. A man with twenty-five cases of abdominal surgery was considered a man of great experience. Surgery passed rapidly through the various stages and experience grew, until now there is practically no organ in the whole body that has not been explored, and now an abdominal operation is usually so uncomplicated and so uneventful that we are almost uninterested. Now surgeons of experience have done thousands of cases of various types.

Now, leaving the evolution of surgery and coming up to the present time, we are beginning to realize that the human body upon which we operate has within itself a certain degree of mechanism of resistance which we must preserve. The majority of surgical deaths are due to not having preserved this degree of resistance. When we open the abdomen we discover the liver, the largest organ in the entire human body. We find the abdomen occu-

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pied by many feet of tortuous intestine from the stomach to the anus, and it should be realized that through this passes the food and the chemical products produced by digestive agencies. We must realize that in the gastro-intestinal tract we have the most complete factory imaginable in which the fundamental principle is to convert foods into such a form as can be utilized by the human body. We must realize that there are many by-products, toxic in form, and all those poisons extracted from the food are passed along the gastro-intestinal tract. Now then, we must realize that with this sewage tube on one side and the liver on the other side, there is marked compactness of the organs of the abdomen. Next we can think that each drop of blood from the entire tract passes first to the liver, and in this way get a conception of the very great importance of the liver in the human body. We must remember the function of the liver in waste elimination and blood purification. If we have a liver abundantly able to carry on its function then we have a practically well body. If the poisons get past the liver circulatory system then we have a poisoned body and our patient suffers to varying degrees according to the extent of the poisons. Therefore the probable explanation of the cases that die is some pathology other than that present at the time of operation. Everything has been done technically that should have been done and yet we have a mortality. As an introduction to the subject of abdominal surgery, let me say that the theory of damage done the liver by an anesthetic has been proven very true at Johns Hopkins University. Every anesthetic does a certain amount of damage to the liver, and this includes local anesthetics. Chloroform does the greatest damage, ether less, and nitrous oxide less than ether, but each of them damages to a certain extent. Let us keep this in mind, that any anesthetic agency we use is going to do some to damage the function of the liver cells to a certain degree.

It is a significant fact that without this physiological resistance, entrance into the abdomen either by penetration from without or perforation from within, and the consequent interference with the cells physiologically, would be immediately fatal from resulting peritonitis. We know there are many cases of perforation which spontaneously recover. During the War many men were shot through the abdomen and lower bowels and yet made the best of re-

coveries. In patients who are old in years we have what has come to be described as acute gastric dilatation, and many explanations have been given as to the causes of acute gastric dilatation. As a matter of fact, this condition is due to the effect of poisons, physiological to begin with, but carried on by a fatal toxemia, and the result is that the patient often dies with what we call acute gastric dilatation. The physiological resistance is not sufficient to combat the poisons. In some cases we find that the patient dies from an interruption of the secretion of urine or acute nephritis, and in many cases we are inclined to say the patient died from ether nephritis. In my judgment, the patients who die because of nephritis die from the effects of poisons which should have been disposed of by the liver, but the liver failing to take up the load throws the burden onto the kidneys, and in this way the chemical by-products are not being taken care of but form poisons which because of this inactivity come into the system, resulting in toxic nephritis. Thus our patients die from the incapacity of the kidneys to take care of anything other than normal matter, which condition we may call toxemia.

Some years ago I had a case of tubercular kidney, which I finally operated for on the left side. Before removal kidney functional tests of the capacity of the kidney on the opposite side had been made. Apparently the right kidney was acting properly, and we thought the trouble was limited to the left kidney. After the removal of the kidney convalescence was uninterrupted for thirteen days—normal temperature and normal pulse. On the thirteenth day the patient was sitting up and she asked me why she could not go home. I told her that her convalescence had been very good except for one thing—that for thirteen days she had not secreted any urine. Uremia developed, and shortly thereafter the patient died. The kidney which we had removed was the better of the two. In many cases where the patient “blows up” the surgeon will say that he developed acute adynamic ileus, or acute dilatation of the stomach as well as gastrecasia, and we say the patient died of adynamic ileus. We do not say that he died of acute nephritis. We say a patient died of ether pneumonia when he probably had toxic pneumonia. This all goes back to the fact that the liver in these instances has been unable to take care of the additional amount of

poisoning. This, therefore, should bring to our minds as surgeons the fundamental fact that we must be sure of the physiological condition of our patient before operation. There is no practical way to make a test. The only way we can be safe is to assume that every patient is inadequate in hepatic function, and therefore it is our problem to put our patient into proper condition. Now, this means in chronic surgery, namely surgery in which we can take our time and adjust the operation to any time that suits. To begin with, the surgeon strives to lessen the amount of poison which is going to be absorbed from the gastro-intestinal tract. We can get rid of some of this absorption by a period of preliminary purgatives. This fact used to be recognized and employed by surgeons who would give their patient two ounces of castor oil the afternoon prior to operation and then go ahead and operate the next morning. It was found that we had more complications in that way than by less drastic measures, and now most surgeons avoid the giving of preliminary purgatives. If you have an old case of gall stones, then you can give a purgative perhaps a week before operation to clear out the gastro-intestinal tract, but we feel it unwise to give a purgative just before operation.

We must also realize that there are many cells in the human body, particularly in the liver, and these are like the mechanism in a battery, as described by Dr. Crile of Cleveland, in that they require water. Many patients have been dried out, they have not cared to take much water. But the patient needs fluid in large quantities in order to carry on the increased activities of the liver and kidneys and to clear up the kidney secreting functions so that these organs may take up the load placed upon them. Most patients are benefitted by preliminary alkalinization. Without doubt there are patients who die of acidosis. Get rid of acidosis with bicarbonate of soda in fair doses for a considerable length of time before operation. Those gall bladder cases can be postponed for a week. Instead of letting the patient wait a week at the hospital, put him through the proper preparation at home—large quantities of water and a teaspoonful of soda four times a day. We must remember that we are preparing for the actual damage the anesthetic is going to do to the liver at operation. It has been my observation

that in these old chronic gall bladder cases where the patient is jaundiced, if the patient is given quinine for a considerable length of time before operation he will undergo it very much better. If we have gall bladder infection we probably have also infection of the rest of the hepatic system. All the cases which have been considered are chronic ones where time can be taken to put the patient in proper shape for operation, and now I want to say a word about acute abdominal conditions.

Fundamentally we have been taught that every case of acute appendicitis ought to be operated as soon as diagnosis is made. Ordinarily that is a good rule, but if we are able to interpret the physiological resistance of the patient to infection within, we may find that it is not a good rule in every case. Occasionally we have a patient who is blown up, with gastro-intestinal pains, marked abdominal distention, and considerable vomiting. Operation at that time means death. We must learn that the important part for us to determine is the physiological capacity of each individual case. Sometimes these conditions are due to irregularities in eating and drinking. To illustrate my point, a young man walked into the hospital one day complaining of severe pain in his abdomen. Several of the physicians said he had acute appendicitis. His abdomen was greatly distended. I said we should not operate on him in that condition, and they replied that he might have a perforation while we were waiting. I would have been held responsible for that death, and against my better judgment I operated on that boy. He never recovered from the acute gastric dilatation. If his stomach had been washed out and he had been given fluid beneath the skin to replace that which was lost, he would have flattened out and reached the stage where surgical operation was possible. We have been taught that every case of gastric obstruction should be operated immediately, but as a matter of fact we do not have any suspicion of the diagnosis until perhaps twenty-four to forty-eight hours have elapsed. Recently a case was brought into the hospital. The patient was vomiting continuously, his eyes were opaque, and he was practically moribund. I said, "He will die if I operate on him now." He was given gastric lavage every three hours and large quantities of fluid were given subcuticularly and by proctoclysis. He flattened out, his pulse became good,

and his mind cleared. He was then permitted to take some liquids by mouth and the condition recurred. The original treatment was instituted, his symptoms again abated, and I operated him thirteen days later with the result that he recovered. I had reduced that case to a physiological condition where it was possible to operate him safely. When I got into the abdomen there was no sign of anything wrong with the appendix. Had that operation been done on a patient in a poor physiologic condition it would have resulted in death.

The trend of modern surgery is towards the man who can do beautiful true surgery, the man who understands thoroughly the physiologic condition of his patient and operates that patient when he can get him in the best physiological condition to develop resistance.

Argyle Building.

SIMPLICITY IN INFANT FEEDING*

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Within the past decade there has been a rapid advancement in the education of the public in child hygiene and infant feeding. Consequently, the physician is called upon now more than at any time in the past to undertake the care and feeding of the normal baby.

This has long been a difficult matter for some physicians who are called upon only occasionally to prescribe a formula. And it is little wonder that so much confusion exists, when we look back upon the various theories and ultra-scientific practices of many who write on this subject. Nearly every young physician and especially the pediatrician comes into his community with a different method of infant feeding. These differences depend upon what part of the country he received his medical training. In the final analysis these differences are more apparent than real. All are able to feed a baby successfully, but it is not so easy to impart that knowledge to the general practitioner who has but a limited time to devote to the subject.

The pediatrician soon learns that the majority of normal infants will thrive on a variety of foods. We occasionally see impractical and illogical milk mixtures, each varying widely from the other and

the infant thriving in spite of the feeding. We have seen infants gain satisfactorily on milk mixtures that have had all the cream removed over a period of many months, others who received cream and water mixtures and still others on sweetened condensed milk throughout the first year. Such babies, however, are in the minority.

Perhaps the greatest fault of our feeding practices in the past was over-dilution of the milk and the fear of injury from first one element of the milk and then another. In some parts of the country they were afraid of the cream, in others it was the sugar or the protein. In an effort to reduce one of these elements or perhaps to increase it, we have developed a multiplicity of methods of infant feeding.

BREAST FEEDING

So much interest in compounding artificial food is likely to lead to a lessened interest in breast feeding. If every physician who has charge of the baby during the first few weeks of its life would make an effort to keep the baby on the breast, or at least make it exhaust the breast supply before artificial feedings are started, there would be much less trouble in conducting it safely through the first year. Even if there is not enough milk in the breast to give it sufficient food and it is necessary to give it complemental feedings, the feeding problem is much more simple.

Too often the bottle is started in the second or third day of life because the breast flow has not been established, or perhaps because the baby is losing weight. This is frequently the beginning of the failure of the breast supply. During the first four days of its life the baby should be made to stick to the breast in the great majority of cases, and we should not pay too much attention to the initial weight loss. The regular and complete emptying of the breast is essential to a good supply of breast milk and nothing contributes to this more than the stimulation of the breast by the nursing. I believe we pay too much attention to the nurse's chart on the weight of the baby during its first week of life and not enough to retracted or fissured nipples that may become so painful that weaning is compulsory.

Breast milk does not always agree, even small amounts may disagree. But if the baby gains in weight satisfactorily we

*Read at the meeting of the Garfield County Medical Society, Enid, Okla., April 28, 1930.

should contend with a certain amount of discomfort. In my experience it is unusual to find breast-fed infants whose stools are normal and who are perfectly comfortable. They may cry a great deal, have frequent stools containing mucus and curds and still gain rapidly in weight. Such a baby may be getting too much milk. We may be able to make it more comfortable by giving warm water with the nursing or immediately before, and thereby lessen the intake. Or if the baby is on a feeding interval shorter than four hours, we should then try a longer interval. Where the mother has an abundant supply of milk and the baby nurses vigorously the four hour interval is usually the best.

Breast fed babies that cry very much are usually hungry. Constipation and an insufficient gain from week to week is good evidence that the baby is hungry. It is advisable to try one or two bottle feedings in such babies and note what relief it gives. Equal parts of milk and water boiled five minutes with a teaspoonful of cane sugar in each feeding will often be followed by a period of well-being that will leave no doubt in the mind of the parent that the child was hungry.

Along with the abdominal pain there may be regurgitation. If this is due to overloading the stomach as is sometimes the case, the longer nursing interval should minimize it. If the vomiting and abdominal pain is severe, the fault may be with the baby and not with the feeding. The regurgitation and colic may be the result of a hypertonic intestinal tract in which there is some degree of enterospasm. These hypertonic infants cry and regurgitate, and gain in weight in proportion to the amount of milk they retain and the amount of sleep they get. A small dose of atropine, increased to the point of flushing or until the symptoms are lessened, usually 1-1000 to 1-500 grain doses before feeding is commonly used. Severe vomiting with loss of weight should be investigated for pylorospasm or pyloric stenosis.

Errors in the mother's diet may produce discomfort in the baby. However, this matter has been very much over-emphasized. Mothers frequently take large quantities of milk with the idea that it makes them have more milk. Others force malted milk or eggs, and it has been determined by removing from the diet certain articles taken in excess, that eggs, wheat and milk occasionally produce dis-

comfort in the nursing baby. This has also been confirmed by dermal tests using the protein extracts and thereby proven to be an allergic manifestation.

In the past too much attention has been paid to the stools. In a breast fed baby if the bowels do not move daily, there is no need for a cathartic or an enema unless the baby is uncomfortable. Constipation in the breast fed is some evidence of insufficient food but the other signs of hunger should be present before artificial food is started. If the baby is gaining and is comfortable on the breast five or six stools a day do not demand any immediate attention. In the case of bottle fed infants more attention is to be given to this number of stools and likewise to constipation.

The two important desiderata in the nutrition of the breast fed infant are, a comfortable satisfied baby and a normal weekly gain in weight. How much the baby gets, how often it nurses and the number of stools each day are all of secondary importance. Many physicians weigh the baby before and after the nursing to determine how much it gets and whether it needs additional food. I have never been able to get much information by weighing the baby before and after nursing to see whether it was getting enough milk. In fact I have never found out how much it needs. The baby is brought to the doctor usually because it was giving trouble and if it cries and fails to gain satisfactorily it is certain that it needs more food. Dr. Gerstley has determined, by weighing a large number of babies before and after nursing, that a baby may take from three to seven or eight ounces at one time. One of the babies in this series took 26 ounces of breast milk daily at the age of one month. Two weeks later it was taking a daily average of 20 ounces and progressing satisfactorily. In the same baby the intake of breast milk at the various nursings varied from 4 to 8 ounces. It is well known that a crying, irritable, sleepless infant will need more food than the quiet, well nourished baby that sleeps well. What physician then, can weigh a baby at his office before and after nursing and tell whether it needs more feeding? We should give the baby enough regardless of any preconceived notions about stomach capacity or how much he needs. He must be comfortable and he must gain normally in weight from week to week or he will like-

ly be taken to another consultant who believes less in rules and stools, etc.

The interval between nursings differ with the individual baby. We should not adopt a rigid regime of three or four hour periods, but be guided largely by the baby. I believe that in the normal baby the interval should not be closer than three hours. Where the baby is getting an abundant supply of breast milk the three hour interval will probably be too short. Such an infant may have to be awakened at each three hour feeding and may suffer from colic and frequent curdy stools due to too much milk. On the other hand, when the breast milk is not abundant, the baby may not get sufficient food to sustain him for four hours, and if a three hour schedule is followed he often does much better. A bottle fed baby, if undernourished, and especially during the early months will usually do better on a three hour schedule. Those that are well nourished and getting sufficient food may not be ready for a feeding every three hours. There is no way of telling by looking at a baby under six months of age whether it should be on a three hour or a four hour schedule.

ARTIFICIAL FEEDING

Much of what was taught us fifteen years ago regarding the modification of cow's milk for infants, has fallen into deserved disrepute. To some extent, tradition still influences our practices as is evidenced by the different methods taught in the several medical centers. We were formerly taught high dilutions and to greatly restrict first one element of the food, and then another. Barley water was given day after day to a starving baby deprived of his milk because all the ills of the digestive system were attributed to either the fat, the protein, the whey or bacteria. Lime water was added to the food of the sick baby if not routinely in all milk mixtures, which in the light of our present knowledge made them more difficult to digest. Now we realize that all the digestive disorders are not due to overfeeding, but are more likely due to over dilution. In fact most of the persistent cases of vomiting that I see are on excessive dilutions. We do not reduce the food drastically and increase the dilution when vomiting or diarrhea starts as in former years. Of course a baby may become ill from overfeeding, but these cases are easily recognized, the symptoms are manifested at once and usually are easily

corrected. On the other hand, long periods of underfeeding produce symptoms that are more insidious and the infant may develop chronic intestinal indigestion, malnutrition and rickets and become a difficult feeding problem.

To successfully feed the majority of normal infants it is not essential for the physician to have a knowledge of the physiochemistry of digestion. Neither is it necessary to know very much about the individual elements of the formula. It is necessary to learn a few basic principles that have been evolved in the past ten years and to disregard much of what was taught prior to that time. At the same time we should know what constitutes a good nutritional state, and see the baby at frequent intervals to see that it is making the normal weekly gain in weight.

The modification of cow's milk can be so simplified that any physician, even with very little time to devote to it, can be taught to conduct the feeding of the majority of normal infants. Those with digestive or nutritional disturbances present an entirely different problem and I believe should be referred to the physician who gives much attention to this subject. In this paper I shall attempt to describe a few simple procedures that can be applied to feeding the normal baby on mixtures of milk, water and sugar.

The first and most important step in the modification of cow's milk is boiling. This should be done in a single boiler and the milk boiled actively for five minutes. Shorter periods of boiling may suffice, or longer periods in a double boiler, but the five minutes boiling with constant stirring has much to commend it. There is no valid objection, but some prejudice against milk. It is probably true that boiling lessens the antiscorbutic vitamin, but even the raw cow's milk and breast milk is deficient in this element and the routine use of orange juice makes up for the deficiency.

The principal difficulty in the digestion of cow's milk is in the protein. This is three times as great in cow's milk as in human milk and for the most part is casein. In human milk the protein is lactalbumin and this forms small flocculent curds in the stomach which are easily digested. The casein of raw cow's milk forms large, tough, leathery curds very difficult to digest. The active boiling breaks up this protein curd and facilitates di-

gestion and at the same time makes the milk safe from pathogenic bacteria.

When we dilute the milk so the protein content at least approximates that of human milk, the fat content is so reduced that, for all practical purposes it can be disregarded. The sugar content of cow's milk is about two-thirds that of human milk, therefore when the milk is diluted the sugar content is so reduced that the infant will not gain unless we add sugar to the mixture.

Therefore the food will consist of milk and water boiled five minutes with some added sugar. Evaporated milk, because it has been subjected to a high degree of heat, lends itself admirably to modification for infants. It fulfils all the nutritional requirements, except a sufficiency of vitamin C, and has been used successfully over a long period of time. It is probable that its ready digestibility by infants, even in the first week of life is due to heating to 200 to 240 degrees autoclave, which has been compared to boiling from one to two hours. It should not be confounded with sweetened condensed milk. Evaporated milk has nothing added and only part of the water (60 per cent) removed.

The amount of food that baby will take at each feeding may vary considerable. For a starting point we can estimate the number of ounces at each feeding by adding two to the age in months. If the mixture is weak and of low caloric value the baby will take a larger amount to satisfy the hunger. On more concentrated mixtures the amount will be less. But by adding two to the age in months we arrive at a fair estimate of its capacity, with always a minimum of three ounces and a maximum of eight.

The number of feedings should not be more than seven in twenty-four hours, six during the day at three hour intervals and one during the night if the baby awakens for it. The four hour interval should be encouraged, but no hard and fast rule should be made. If the baby is well nourished and gets sufficient food it will tend to go on through to the four hour period. If underfed or underweight the three hour interval will probably be the better. Ordinarily at the third month the night feeding can be discontinued.

In the choice of the three or the four hour feeding interval and the time to discontinue night feedings, we would do well

to be guided largely by the baby. Many babies sleep through the night from birth. I do not think it is desirable to awaken the baby every three hours to be fed. If it is allowed to sleep and awakens at the end of three and one-half hours and demands its food, I believe it should be fed instead of having to wait until the four hours pass.

How much shall we dilute the milk? If milk is boiled actively for five minutes, it is my experience that the normal baby can digest equal parts of milk and water. A possible exception may be made in infants during the first two or three weeks of life that get no breast milk. In such infants the cream is removed for a few days until the mixture is taken well, when the cream is gradually added. At three or four weeks of age most infants can digest the 50 per cent milk and water mixtures, provided they are boiled five minutes or more. Evaporated milk diluted to this strength that is, one part evaporated milk to three parts water, can be taken during the first week of life.

TABLE I.

The quantity of sugar to be added to the formula is very flexible. In former years we were taught to compute the amount with care and to try to approximate the six or seven per cent in mother's milk. Now we know that no such meticulous care is needed and our mixtures contain from five to fifteen per cent. In fact we seldom figure the per cent. It is a good practice to start with a small amount, one ounce to the day's feeding, and if well tolerated as is evidenced by a constipated stool or the absence of fermentation and frequent stools, this is gradually increased to two ounces. In concentrated mixtures when lactic acid is used as much as three ounces are added. A mild degree of constipation is desirable in a bottle fed baby, and if the maximum amount of sugar is tolerated it has a favorable effect on the weight.

Assuming therefore, that we have a baby four months old, weighing 13 pounds, we would give six ounces each feeding and probably six feedings daily at three hour periods. According to the procedure outlined he would be given three-fourths milk and the formula would be Milk 27 ounces, Water 9 ounces and Sugar 1 to 2 ounces.

If this did not satisfy the baby after a few days, I would gradually increase

the milk and decrease the water until the baby was satisfied, without increasing the quantity. The baby should have enough and at the same time we should avoid over dilution even if the strength of the mixture approaches whole milk.

The choice of a sugar depends to a great extent upon its effect on the number and character of the stools. Cane sugar is cheap and always available and in the majority of infants it can be used. Corn syrup for the same reason is widely used, it has the advantage of not being so sweet when large amounts are used. Cane sugar breaks up further down in the intestinal tract the maltose and dextrin and the products of its fermentation have a tendency to increase the stools. Dextri-Maltose, Maltose-Dextrin, Mellins Food and Karo syrup are digested higher in the bowel and are not so likely to produce the same degree of fermentation with its laxative effect.

The differences between the sugars however, is arbitrary, and our prejudices guide us to some extent in our choice.

ACIDIFIED MILK

If further concentration of the food is necessary we can make even boiled milk more digestible by the addition of some acid so that the hydrogen-ion concentration approaches that of human milk. Under normal conditions the food in the stomach is brought from an alkaline or neutral reaction to a markedly acid reaction by the hydrochloric acid, to a pH of 4 to 5. During this time it passes through a range of acidity that is optimal for the principal gastric ferments, rennin, lipase and pepsin. Cow's milk contains more buffer substances than human milk. When human milk is taken into the stomach, the gastric acid buffers these substances easily and the content of the stomach soon becomes highly acid, reaching that degree of hydrogen-ion concentration (3.75) where peptic digestion takes place normally. On the other hand, after a feeding of cow's milk a greater amount of the hydrochloric acid is required to overcome these buffer substances, consequently the food stays longer in the stomach until enough acid is produced for peptic digestion. The cow's milk uses up acid that should remain as such in order to promote the activity of the pepsin. If we can neutralize or debuffer these substances in the cow's milk before it is taken

into the stomach, we spare the hydrochloric acid of the stomach to perform its normal function, viz., to create a degree of acidity that is optimal for peptic digestion.

Lactic acid is most frequently used. Three drops are added to each ounce of boiled cooled milk. I have used two drops to each ounce and find that works satisfactorily and with less likelihood of curdling the milk. Three ounces of corn syrup are added to the quart of lactic acid milk. It is a good practice to mix the syrup with an equal quantity of water in a cup and then add the lactic acid. The acid-syrup mixture is then added to the boiled cold milk, slowly, a teaspoonful at a time with constant stirring.

This concentration of the food enables us to give smaller feedings with higher calories. This is desirable in infants very much under weight, those with feeble digestive powers and in vomiting infants. A poorly nourished baby needs relatively much more calories per pound than a normal baby of the same age, although its stomach capacity is no greater and its digestive capacity probably not as great. Therefore anything we can do to make the food less bulky and more digestible is much to be desired.

Not every baby needs lactic acid in its food. Most normal infants adapt themselves to cow's milk readily and soon are able to digest it without much dilution, in spite of its buffer substances. Evaporated milk with an equal quantity of water to make whole milk has been used with and without lactic acid by Brenne-man, in very young infants. He finds it just as satisfactory without the addition of acid and attributes its success to the fine curd due to the heating process.

Orange juice should be given daily to every infant whether on the breast, raw cow's milk or boiled milk. This is fairly well understood by the mothers in respect to heated milk, but they should be impressed with the fact that raw milk and even human milk is deficient in vitamin C.

Table 1. Milk and Water Dilutions According to Age.

Birth to 2 mo. 1-2 Milk and 1-2 Water with 1 oz. Sugar.

2 mo. to 4 mo. 2-3 Milk and 1-3 Water with 1 to 2 oz. Sugar.

4 mo. to 6 mo. 3-4 Milk and 1-4 water with 1 to 2 oz. Sugar.

7 mo. Whole Milk, gradually omit Sugar.

Note: About four ounces of water should be added in addition to that required, to make up for the loss in boiling.

A BRIEF REVIEW OF DIABETES MELLITUS*

F. CLINTON GALLAHER, M. D.
SHAWNEE

Members of the Pottawatomie County Medical Society and Guests:

It is not my intention to introduce any material foreign to your knowledge and experience, but rather to indicate briefly, in review, a few considerations of a condition about which practically nothing is known.

I. DEFINITION

Diabetes Mellitus is a metabolic disturbance which is characterized by a deficiency in the pancreatic secretion of insulin, a substance which is essential in the normal oxidation of carbohydrates; and where it is present in subnormal amounts there is an increase of the blood sugar content, and often a spilling over of sugar in the urine. Often associated with the disturbed carbohydrate metabolism there is disturbance also in the metabolism of protein and of fat.

Though doubt in some cases seems well founded, the definite lesions in the pancreatic islands of Langerhans in Diabetes are usually hyalinization, fibrosis, or hydropic or vacuolated degeneration of the Beta cells; the latter is most common. Thyroid disturbances are sometimes associated, and it seems probable that other members of the endocrine system may be involved.

II. ETIOLOGY

Several factors are thought to predispose to the condition. Obesity is usually listed among the first. Members of the Hebrew race are more often affected; men more often than women, in a ratio of about 3 to 2. The lack of exercise, the presence of infection, heredity, and nervous influences are mentioned. The disease occurs more often after 40 years of age; it is more severe, as a rule, in the young; it may be present at any age.

We have definite knowledge of several factors which tend to induce Coma:

(a) Indiscretion in diet is perhaps the most important factor. A diet should satisfy the patient, and no management is adequate when this requirement can not be met. Sometimes it is impossible, and there are those who will steal food. The degree of intelligent cooperation with the physician in charge will very often indicate the prognosis. Given adequate guidance, except in quite severe cases, the prognosis is often in the hands of the patient.

(b) A second factor is the misuse of Insulin. One example deserves particular mention. Patients using Insulin occasionally lose their appetites, and in failing to take food, omit the administration of Insulin. It is true that the dose would usually be somewhat diminished, but to omit it entirely is an action of danger. Metabolic processes continue and are slightly more apt to be disturbed when food is not taken. By withholding Insulin also, there is an accumulation of the products of incomplete oxidation, and acidosis is added to hyperglycemia.

(c) The diabetic should be carefully guarded against infections, for his resistance to any form of infection is diminished. This is admittedly true, in spite of the excessive leukocytosis often observed in diabetics with infections. The W. B. C. count may be 30,000, 60,000, or more. Moreover, the presence of infection seems to render the diabetes at least temporarily more severe, and it is thought that permanent damage is often done at such times. One remembers also the dread of Diabetic gangrene.

Other conditions which seem of influence in the production of coma are overwork, nervousness, pregnancy, and undue mental strain.

III. DIAGNOSIS

Symptoms may be entirely absent. It sometimes happens that the patient is in actual diabetic coma before the condition is recognized. Diagnosis may easily be overlooked in a mild case, unless one is continually aware that it should be excluded in doubtful cases, and that it is a possible complication in any condition.

Symptoms may include any or all, or none of the following:

(a) Polyuria, which is noticed by the patient, with frequency and sometimes nocturia. It is doubtless caused by the

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diuretic effect of the sugar, and by another symptom.

(b) Polydipsia. This is rather common, and is thought to become prominent because of the dehydrating effect of the increased blood sugar.

(c) Polyphagia is sometimes observed. Hunger is present because the body tissues cry out for food, which, though present in excess, they are unable to use.

(d) Other symptoms may be loss of weight and weakness, which two are usually proportional. Pruritis may be present; in women it is usually confined to the genitalia, though it may be general.

The condition should be suspected in cases of Furunculosis and in any case where the resistance to infection seems diminished without apparent reason.

One is confirmed or disproved by determining whether or not Glycosuria and Hyperglycemia are present.

IV. LABORATORY OBSERVATIONS

A continued glycosuria is usually indicative of Diabetes Mellitus, though it must be distinguished from a few other conditions of rare occurrence. A blood sugar determination will usually give positive evidence of the condition of the carbohydrate metabolism. The Jones' test is simple, and often adequate. The patient is given a hearty breakfast including cereal with sugar and cream, coffee with plenty of sugar; eggs, toast and bacon perhaps, and hot cakes with syrup. In normal individuals the blood sugar will return to the normal limit of 90-120 mgm per 100 cc in 2½ hours. If the content is much increased it is usually well to do a Glucose Tolerance test. The diabetic curve will show that the increase is prolonged over a period of several hours. Indeed it may not fall within the range of normal limits until treatment is instituted. The duration of this increase is of more significance as to severity than its height. An estimation of the 24-hour urinary sugar is another index to the severity of the disease, indicating relatively the degree of pancreatic deficiency.

I regret the stress which is of necessity placed upon the virtue of frequent recourse to quantitative chemical analysis, since for many good practitioners this aid is difficult to obtain. I cannot believe, however, that a doctor is justified in omitting any effort in securing this service for the patient.

V. DIFFERENTIAL DIAGNOSIS

In suspected cases where a reducing substance is present in the urine it should be demonstrated, if true, that the substance is glucose. Pentose, galactose, levulose, and maltose may so reduce copper. These substances are of clinical significance only in the respect that they may lend confusion in the diagnosis.

If true glycosuria is present, two other conditions must be excluded:

a. Renal glycosuria, which is differentiated by the constancy of glycosuria, regardless of carbohydrate intake; by the normal sugar curve; and by the absence of other symptoms of Diabetes Mellitus.

b. Alimentary glycosuria includes conditions in which there is a trace of sugar in the urine after excessive carbohydrate ingestion, in the presence of undue emotional stress, or with a combination of both of these factors.

VI. TREATMENT

No dissertation upon the treatment could be complete without brief reference to its history. The condition was not recognized by Hippocrates, but was first described by Celsus at about the time of Christ. The early practitioners sought to replace the sugar lost in the urine; later the starvation method was employed. But even symptomatic relief was rare, except in very mild cases, until the advent of insulin, in 1922. For this extract of the pancreas we are indebted to Drs. Banting and Best, who worked under the direction of Professor McLeod of the University of Toronto. Joslin has said that the advent of insulin has made treatment easy, but certainly more complicated. He also insists that no one should ever die from diabetic coma.

A cardinal principal in the treatment of Diabetes Mellitus is to KEEP THE URINE FREE FROM SUGAR. In mild cases it is often found sufficient to reduce, or to set definite limitations upon carbohydrates.

In moderately severe cases it may be necessary to suggest a standard maintenance diet. For each case this must be calculated anew. A typical formula may be cited as an example: the 70-60-120 gm. ratio, of carbohydrate, protein, and fat. It is always preferable to allow the patient to continue his usual activities. Weight should be maintained, though not fat. Nor should rapid reduction in weight be suggested. When at liberty to control,

the physician should seek to keep the weight slightly sub-normal. It is suggested that a standard maintenance diet should be determined, and insulin given if necessary, in doses sufficient to keep the urine sugar free. A rather accurate index to the amount of insulin that may be required is indicated by the determination of the amount of sugar eliminated in 24 hours. The physiological requirement is found to be about one unit per three grams of sugar.

More severe cases will require more study and should be kept under almost constant observation for a considerable period of time. In addition to determining the diet and insulin requirements, the physician must indicate the time interval between insulin and food. He should consider the number of doses of insulin and reduce them as much as possible. He must have regard for the general health of the patient, and give particular attention to the cardio-vascular-renal system. He should be aided, if possible, by frequent check of the state of carbohydrate metabolism through quantitative determinations. At least one daily qualitative test of the urine with Benedict's solution should be insisted upon. Ambulatory patients may be supplied with a simple tray containing the necessary equipment: a bottle of Benedict's solution, a small burner, test tubes and a test tube holder. In so checking his own urine for glycosuria, its absence lends confidence in the management; its presence affords a warning to the physician in charge.

Coma is not rare, and its presence always constitutes an emergency. The treatment should (1) Combat the shock, (2) Reduce the hyperglycemia, (3) Correct the dehydration, and (4) Neutralize the acidosis. Body Heat should be maintained. Insulin is used in initial doses of 40 to 75 units, followed by 10 to 20 units each hour until the urine becomes sugar free. (Catheterization is done with serious regard for the danger of infection.) Fluids should always be pushed. At least 200 c.c. per hour should be given, by mouth or otherwise. An enema should be given. Cathartics are avoided. A proctoclysis of normal saline should be given (Murphy drip) with 2 per cent bicarbonate of soda if necessary. Severe dyspnea (Kussmaul breathing) is considered as the symptom most truly indicative of the presence of a severe degree of acidosis. Many workers believe the use of alkali is unnecessary, and regard it somewhat as digitalis is re-

garded in thyroid conditions affecting the heart. It is probable that the most beneficial treatment is that which seeks to correct the condition which produces the acidosis. Not more than 20 gms., of the anti-acid should be given. Hypodermoclysis of normal saline should often be given, 1000 c.c.

A determination of blood sugar is of value in prognosis, and affords aid in estimating the amount of insulin which may be required. If it should fall below 60 mgms. per 100 c.c., sugar should be administered, whether there are symptoms of insulin shock or not.

Any diabetic may be subject to HYPOGLYCEMIC reactions, but a few are found in whom the blood sugar level must be sustained within very narrow limits, and a slight departure from the physiological normal for these individuals will throw them into impending or actual coma, or into what is usually called insulin shock. Such a condition may be of rapid onset, with profound weakness, mental confusion, diplopia, incoordination, fixed stare, asphasia and muscular tremblings progressing to convulsions. The more usual manifestations of hypoglycemic reactions, induced by an overdose of insulin, consist of general muscular weakness, flushing of the face, a weak, hollow feeling, as of hunger, and restlessness, with profuse sweating. Sugar, orange juice, or carbohydrate in any form will often allay these uncomfortable feelings in a few minutes. Adrenalin (4 to 15 min.) will counteract the reactions temporarily, but should be followed by 5 to 20 gms. of glucose at once. Intravenous glucose is used in severe cases.

In concluding we may indicate that all management, in its present status, represents an attempt at symptomatic relief. It is, however, true that some apparent improvement in pancreatic function is observed when careful management is continued over an appreciable period of time. The carbohydrate ingestion may sometimes be increased on the same dosage of insulin; insulin in small doses is sometimes found unnecessary after it has been employed for a few months. A few cases become progressively more severe in spite of most careful treatment.

Until the etiology and the true nature of the disease is more fully appreciated it seems probable that cures will be rare, and recurrence in apparent cures frequent. Until then it seems indicated that all dia-

betics should be considered in danger of health, or of life, except with faithful treatment and frequent check of the state of the carbohydrate metabolism. With such care, however, all but the most severe cases may be found to continue in health, to enjoy the pursuit of their usual activities, and perhaps outlive the physician who directs them.

I wish to acknowledge with appreciation the source of treatment methods here indicated. They have been employed, in general, by Dr. Byron D. Bowen, of Buffalo, New York, with whom I had the privilege of rather intimate association for a number of months. Since the advent of insulin he has studied more than 85 cases of diabetic coma, and his conduct of them has been such that his mortality rate is slightly less than that of Joslin. His report of a study of 85 cases will appear in an early number of the Archives of Internal Medicine.

AMABIASIS—PRESENT DAY INTEREST

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Amabiasis in an infection, by the *Entameba Hystolitica*, in the large intestine, with a tendency to produce frequent discharges of blood and mucus continuously or interruptedly, and to an invasion of the liver. This tendency to produce diarrhea is proving to be less marked than is wont to be considered, i. e., healthy carriers or those with mild symptomatology being the rule rather than the exception. In 533 cases reported by Brown of Mayo Clinic only a small portion gave a history of dysentery or had ever been in districts where amoebic dysentery is endemic.

Reports generally for the past few months especially, show a definite increase in the incidence of this disease—and as only a relatively small percentage shows the characteristic clinical evidence, it seems highly important that especial evidence be found or developed that might be of value in routine examination of the patient in recognizing the obscure cases. There has been nothing developed, of late, of diagnostic value except that of Craig¹, who by means of rather elaborate technic prepared the reagents for a specific complement fixation test analogous to the Wasserman test. In September, last, he reported having tested 623 patients, with various types of ailments, in the Walter

Reed Hospital—67 gave a 3 or 4 plus reaction. In all but six of these cases *Entameba Hystolitica* were found on examination of the stools. The method seems to be, as yet, in the crude stage and the difficulties in preparing a satisfactory antigen make this, for the present, unsatisfactory for routine use but will doubtless be developed to the point of practical value in the near future.

In 1875, Losch² observed amebae in dysenteric stools and suggested a causative role—nothing more is reported in the literature until 1885, when Kartullis³, after a long series of investigations, defined two types of dysentery—an endemic form due to ameba and an epidemic form due to bacteria. This was not generally accepted, however, until 1900, when etiology of bacillary dysentery was definitely established. In 1891 Councilman and Le Fleur⁴ of Baltimore definitely fixed the relation of striking lesions wherever the amebae had penetrated the intestinal mucosa. These are the men who introduced the term "Amebic Dysentery," by which name the disease is still generally known. (However, the term "Amabiasis" is coming into use more and more because the dysenteric features appear in such a small percentage of the infected cases.) Two types of amebae were found—one was called *Entameba Hystolitica* because of its ability to dissolve tissue—the other the *Entameba Coli*, parasitic but non-pathogenic.

The *Entameba* are highly parasitic, hence have not been able to be developed outside of the animal host in nature. Thus far culture of the parasite has been very unsatisfactory. Cutler⁵ has reported, rather recently, the cultivation of *Entameba* on a selected medium—multiplication occurred only in an extremely small percentage of cultures. He was unable to separate the few *Entameba* from contaminating bacteria or to isolate a strain that would produce a single cell.

The intestinal lesions in Amabiasis are confined to the large bowel, the caecum being the site of preference, although the hepatic flexure and sigmoid often show definite involvement, with distribution of lesions throughout the whole bowel as the disease progresses. However, islands of normal mucus membrane are always found even in advanced cases. In the attack a minute area of inflammation appears surrounded by an area of hyperaemia; this may be round or long and narrow; soon there appears a small yellow

dot in the center—an area of necrosis. The base of the ulcer is gradually eroded but perforation of the bowel seldom occurs. The amebae continue to burrow through the mucosa and submucosa and being cytolytic in their action produce a dissolution of the tissue with which they come in contact. There is a tendency of the mucosa to heal over by scar tissue. According to some of the more recent investigators as James⁶, Weyon and Dobell, the amebae may bury themselves in the mucosa producing an abrasion so small as to be almost invisible microscopically, which may explain the cases with very moderate symptoms accompanied by definite lesions in the wall of the bowel—again James⁶ advocates that the parasite may live in the lumen of the bowel without attacking the mucosa except under certain circumstances, probably the only logical explanation of the condition of healthy carriers.

These cases may become active following dietary indiscretions, intermittent disease, exposure or any condition which may lower the resistance. In the classical case the history recounts numerous attacks of diarrhea, the passages being mostly blood and mucous, marked tenesmus, vague abdominal pains, disturbed appetite, loss of weight and general incapacity. The dysentery in these cases is due either to a generalized ulceration of the entire bowel with the resulting colitis or to ulcers in the sigmoid and rectum—but amebic ulceration of the coecum, hepatic flexure or transverse colon may occur without dysentery, even though the lesions be well marked. In cases of this type constipation and diarrhea may alternate or constipation be the rule. The symptomatology is quite varied, usually that of the ordinary type of mild spastic colon so that the diagnosis cannot be made except by finding the *Entameba Hystolitica* in the stool. This group comprises by far the greatest percentage of amebiasis cases. These are the cases so commonly overlooked and as stool examinations, as made by the average hospital laboratory, particularly with reference to amebae, are not to be depended upon, for as James⁶ says, "This is a task requiring long and special training," unless proctoscopy is done routinely, nothing offers itself as even a suggestive diagnostic factor pointing to amebic infection.

This may help to explain the many reports of abscesses of the liver without the history of amebic dysentery. Amebae are frequently found in the venules from which they readily gain access to the por-

tal circulation, from thence to the liver; then, too, bacteria are prone to follow the course of the amebae producing an abscess in the substructure of the bowel wall, or by following the blood stream, in the liver.

It seems, then, two things are quite obvious from a diagnostic standpoint, first that examination of the stools may furnish no evidence except in cases of healthy carriers or of definite dysentery—that in the mildly infected cases with unclassical symptoms the amebae may not be found because of their adherence to or in the bowel wall.

Hence an area of the mucosa must be found from which ameba may be obtained directly. In any case that has been infected any great length of time the sigmoid is more or less involved so that by the use of the proctoscope, one or more abrasions may be found and with a little experience readily recognized. From this point by pressure with a swab or applicator amebae may be obtained. It is occasionally necessary to use the telescopic attachment of the proctoscope because of the smallness of the infected areas. This should be done routinely on every case of which there is any suspicion of a colon infection.

SECOND

Inasmuch as the colon is the seat of trouble in amebiasis and the X-ray has become so highly developed and is generally of so much value in the diagnosis of bowel conditions, it has seemed strange to the writer that nothing has appeared in the literature, pointing to work of an investigative nature along this line.

With this belief that something characteristic should be found a careful X-ray study of these cases was begun several months ago.

It was found that, first, the motility of the colon was definitely disturbed, the barium moving slowly through the colon with tendency to caecal stasis. That definite defects occurred and not particularly well defined occurring in more than one area—together with evidence of marked irritability of the colon in general.

In nearly every case the shadow showed a mottled appearance either at the head of the caecum or at the hepatic flexure or both and occasionally at the proximal portion of the descending colon. As the barium moved on in the colon where had appeared a mottled appearance, small, round or elongated points were often seen to which the barium adhered—this condi-

tion showed sufficient constancy to permit us to rule out accident or incident. Repeated observations on patients on treatment showed a disappearing of this evidence in proportion to the clinical improvement.

In every patient with whom these X-ray evidences were found there was demonstrated the amebic infection and conversely in every case in which was found amebae with clinical evidence of a bowel disturbance the X-ray findings were positive.

In proving out these cases, stool examination alone was not depended upon—smears were made from the sigmoid and the presence of the amebae determined. Further observation was continued until the four nucleated cysts were found.

The cystic forms, as a rule, appear soon after treatment has begun. This was done to avoid any possible error, as it is often difficult to differentiate the *Entameba Hystolitica* from the *Entameba Coli* in the fresh material, and in the vegetative form.

No single defect was found in the X-ray films as in the case of Carcinoma and Tubercular ulceration—so no difficulty was encountered in differentiation from these diseases.

While this study has comprised a rather limited number of cases, the evidence is sufficiently constant to warrant our belief that the X-ray will prove of exceptional value in the recognition of unsuspected cases. Furthermore, our study of the incidence of Amabiasis in the University Hospital at this time, the data on which is not yet complete, already gives us sufficient evidence of rapid increase and spread of the disease as to make any method which will facilitate the diagnosis welcome, if it does nothing more than arouse our suspicions to the end that more thorough search be made.

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REFLEX ITCHING IN ASTHMA

Ray M. Balyeat, Oklahoma City (Journal A. M. A., March 16, 1929), in studying cases of reflex itching in asthma asserts that only a limited number encounter such a symptom. A history of the symptom was elicited in only thirteen out of 420 patients, or 0.3 per cent. Of the thirteen

patients presenting such a symptom, all were adults but two, and all had itching in the upper interscapular area. Two patients complained of marked burning associated with the itching, and two patients had both itching just beneath the clavicles and itching between the shoulders. All were very sensitive to pollen, and the itching sensation was more severe during the pollen season. Clinically, from the author's study of the asthmatic patient who complained of itching of certain areas of skin of the upper part of the chest, it appears that the itching viscerosensory reflex due to the irritation of the bronchi is manifested on the skin of the chest more frequently over an area posteriorly supplied by the fourth and the fifth cervical nerves, and an area anteriorly supplied by the third. It is interesting to note that referred itching can be controlled in a similar way to that of referred pain; namely, by pressure. A knowledge of reflex itching and the source of it in the asthmatic patient is of no great practical value but it explains a very uncomfortable symptom in a small percentage of patients suffering from asthma and suggests a practical method of treatment for the symptom.

LIVER EXTRACT IN

TOXEMIA OF PREGNANCY

In a group of twenty-five cases, A. M. Mendenhall and David L. Smith, Indianapolis (Journal A. M. A., June 15, 1929), found that there was only one in which there was any strong evidence of real benefit from heparmone. It failed to stop convulsions; it failed to prevent convulsions, and it failed to relieve the general post-clamptic symptoms, such as continued high blood pressure and albuminuria. In one case it failed to benefit the early toxemia of pregnancy. In view of their inability to demonstrate any benefits from heparmone in twenty-five cases, and in view of the alarming symptoms produced in many cases, they have discontinued its use.

WAYS IN WHICH EMOTION CAN AFFECT THE DIGESTIVE TRACT

Some cases are reported by Walter C. Alvarez, Rochester, Minn. (Journal A. M. A., April 13, 1929), in which there were signs of psychic increase in intestinal tone and activity. Much experimental evidence has been gathered to show that emotions can stimulate or inhibit not only peristalsis but also the flow of the salivary, pancreatic and gastric juices. Normally, the sight, smell and thought of food prepare the digestive tract for the work it has to do. Not only mental but also physical fatigue can interfere with this process. A syndrome is described in which most of the sphincters of the body are hypersensitive and hypertonic. It is suggested that more effort be made to warn patients against eating when absent-minded, mentally upset, or greatly fatigued. Not infrequently some article of food gets the blame for an attack of indigestion when the trouble was really due to the fact that a large meal was put into a stomach that was not ready to receive it. It is suggested that after operations, when a return of peristalsis and intestinal tone is desired, it would be logical to give the patient some tasty morsel of food, preferably meat.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

CHEMICAL HYSTERECTOMY*

The use of zinc chloride has been occasionally practiced by a few discriminating gynecologists and surgeons over a period of many years. The writer's attention was first called to this procedure more than twenty years ago through the work of Smith of New Orleans, who at that time was reported to have had remarkable success in the use of zinc chloride packs in certain conditions. The treatment is not, as might be supposed, necessarily used in the treatment of malignant

conditions, but rather in those cases showing various troubles of a chronic nature in the uterus, in whom the uterus, or the cervical portion of it, acts as a focus of infection, and in whom the condition is complicated by disease of the kidneys or heart.

Mayo notes that rheumatism, secondary inflammations of the eye, such as, iritis, iridocyclitis, hemorrhages in the retina, or corneal ulceration, are not entities of themselves but are secondary to focal infection in other regions of the body, very often in the cervix. There are often cases of foul discharge from the uterus, which may occur fairly early in life, but more often in later life, from 42 to 60 years of age, polypoid endometritis, or growths in the uterus nearly always causing hemorrhages. These women are sometimes very fleshy, frequently not married, or if married have borne no children and sometimes are affected with disease of the kidney or heart.

Removal of the uterus through the vagina as well as operation through an abdominal incision and many inches of fat, would be difficult and dangerous and this added risk due to complications may not warrant such an extensive surgical procedure as hysterectomy, and it is in these cases that the use of zinc chloride will virtually perform a hysterectomy without the risk of a dangerous surgical operation. However, some bad results and even fatalities have occurred in a few instances. The application of zinc chloride calls for the execution of most rigid technique and a very skillful follow-up for the first few hours, thirty-four hours being the limit of time arbitrarily placed by Dr. J. C. Masson of the Mayo Clinic, for retention of the packs.

A more detailed description may be found by consulting the authority noted below*

—o—

Editorial Notes—Personal and General

DR. A. W. HEFFLEMAN, of Picher, has recently located in Grove, Okla.

DR. J. M. LANNING, of Picher, has removed to Shawnee for the practice of his profession.

DR. HOLLOWAY, of the U. S. Bureau of Mines Clinic, has been transferred to Hot Springs, Ark.

*Collected Papers, Mays Clinic, Vol. XXI, 1929. P. 427-430.

DR. J. HUTCHINGS WHITE, Muskogee, who has been ill at the Baptist Hospital is reported very much improved.

DR. R. M. ANDERSON, Shawnee, who has been seriously ill for several days is reported very much improved.

DR. GEORGE H. NEIMANN, Ponca City, spent two weeks of June in Rochester, Minn., attending the Mayo Clinic.

DR. F. M. BLACK, has located in Kansas City, Missouri. He was formerly a practicing physician in the Miami mining district.

DR. H. C. ANTLE, Chickasha, has returned from New Orleans where he spent a month attending Dermatology Clinics at Tulane University.

DR. J. C. JACOBS, of Miami, has been kept closely to his home the past six weeks by the dangerous illness of his wife. Mrs. Jacobs is still dangerously ill.

MISS FLORENCE WORLEY was appointed last week as Superintendent of the Miami Baptist Hospital. The selection of Miss Worley has met with general satisfaction.

DR. G. F. BORDER, Mangum, while attending the annual session of the American Association, took time off to purchase a four-passenger Stinson-Detroit airplane.

DR. BENJAMIN DAVIS, Cushing, after attending the Detroit session of the American Medical Association, continued his trip to Europe. He will visit various surgical centers during the summer, returning early in the fall.

OSAGE COUNTY MEDICAL SOCIETY, held its monthly meeting June 3rd in the Duncan Hotel, Pawhuska. Dr. Ray Balyeat, Oklahoma City, discussed allergic diseases of children. Dr. Salmon, Oklahoma City, discussed baby feeding.

LINCOLN COUNTY MEDICAL SOCIETY held their regular monthly meeting at Sparks, July 2nd. Dr. M. B. Glismann, Okmulgee, read a paper on "Prenatal Care," and Dr. Fred S. Watson, Okmulgee, read a paper on "Diagnosis of Appendicitis."

LINCOLN COUNTY MEDICAL SOCIETY met at Meeker June 4th for their regular meeting. Dr. A. L. Blesh, Oklahoma City, gave a talk on "Surgery." Dr. McDowell, Oklahoma City, gave a talk on "General Medicine." A banquet was served after the program.

DR. E. S. LAIN, Oklahoma City, after attending the Detroit session of the American Medical Association continued his trip to Europe. After visiting various European centers Dr. Lain will attend the International Dermatological Association, which meets at Oslo, Norway. He expects to return early in September.

DR. JACKSON BROSHEARS, Lawton, is a candidate for the nomination of Lieutenant-Governor on the Republican ticket. Dr. Broshears, many years a resident of Lawton, has always been an outstanding member of the medical profession of Oklahoma.

DR. J. B. HAMPTON, of Commerce, was severely injured while driving his auto near Pryor, on the 9th of last month. His car did not negotiate a concrete culvert and J. B. and his friend Noel Wyatt, a Commerce Banker, were cut and bruised badly. Dr. H. was confined to his home for three weeks, but is able to be about.

POTTAWATOMIE COUNTY MEDICAL SOCIETY held its regular meeting on June twenty-first. Dr. C. B. Barker, Guthrie, presented a paper on "The Suppurating Ear and Its Complications." He was assisted by his wife, Dr. Pauline Barker. The lecture was supplemented with slides and motion pictures which Dr. Barker has had prepared in his own Clinic.

OTTAWA COUNTY MEDICAL SOCIETY had their June meeting, on the 25th, at Camp Medical with noonday lunch. Dr. Ned Smith, of Tulsa, delivered a very scholarly address on "What the General Practitioner should know of Psycho-analysis." A large attendance was present and an enjoyable time had. The Society will hold its next meeting at Camp Medical the second Wednesday in September.

DR. GENERAL PINNELL, and wife, while driving across Missouri, in the early part of June on a trip to meet their son who was in school in Illinois, sustained severe injuries as a result of the front axle of their car breaking. They were going quite fast and were catapulted over into a nearby corn field. Both the General and Mrs. Pinnell sustained broken ribs and severe bruises but they are able to be about, with the assistance of crutches.

SOUTHEASTERN OKLAHOMA MEDICAL ASSOCIATION met June 19, in McAlester. Medical and surgical clinics were held at the Albert Pike Hospital and the state penitentiary hospital in the forenoon. The following program was rendered:

The Differential Diagnosis of Some of the Contagious and Infectious Diseases, Dr. J. B. Clark, Coalgate, Okla.

Diagnosis of Inflammatory Diseases of the Anterior Segment of the Eye Ball, Dr. J. E. Davis, McAlester, Okla.

The Rational Treatment of Carcinoma of the Cervix Uteri, Dr. Wendell Long, Oklahoma City, Okla.

Fractures of Femur in Children, Dr. L. S. Willour, McAlester, Okla.

Subject Unannounced, Dr. J. M. Harris, Wilburton, Okla.

Dinner 6:30 P. M. American Legion Building Invocation, Dr. A. A. Duncan, Pastor, First Baptist Church, McAlester, Okla.

Welcome Address, Hon. Frank Watson, County Attorney, Pittsburg County, McAlester, Okla.

Response to Welcome Address, Dr. G. C. Gardner, Atoka, Okla.

Address, Dr. Chas. M. Rosser, Physician, Lecturer and Entertainer, Dallas, Texas.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
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A Review of Factors Involved in the Decline of Tuberculosis, W. P. Shepard, M.D.: J. A. M. A., Vol 94, No. 10, March 8, 1930., San Francisco, California.

The decline of tuberculosis has been marked and persistent in the United States for more than fifty years. For purposes of discussion, the writer proposes the following hypotheses:

1. Tubercularization: Other things being equal, the tuberculosis death rate will vary directly with the number and virulence of tubercle bacilli and the number of susceptible persons in a population.

2. Physical Well Being: Other things being equal, the tuberculosis death rate will vary inversely with the degree of physical well being of individuals in a population.

3. Medical and Public Health Facilities: Other things being equal, the tuberculosis death rate will vary inversely with the amount of employment of good medical and public health facilities in a population.

By tubercularization is meant the degree of ubiquity of tuberculous infection, not alone tuberculous disease; the term may be considered synonymous with tuberculosis immunization. The number of tubercle bacilli present will obviously depend on the presence of uncontrolled human or bovine cases, recognized or unrecognized. Autopsy reports and tuberculin tests of large numbers tend to show that tubercularization is neither a racial nor a geographical phenomenon but depends solely on opportunities for infection. This recalls the law of Romer: "Where tuberculosis is a rare disease, the cases that occur will be acute and fatal. Where the disease is common, the types will be chronic and relatively benign. In other words, contact with tuberculosis affords a certain protection against it." Thus, a new born infant, in contact with a consumptive mother, is suddenly exposed to massive infection and is likely to succumb to an acute, generalized tuberculosis. Escaping such a fate, the child meets its first infection by picking up now and then a tubercle bacillus from some of the countless articles with which it comes in contact, and, provided that the initial infection is not too large, acquires a gradual immunization.

The extreme rarity of infection among natives in Africa is attributed by Calmette to their isolation rather than to immunity because, once introduced, the disease is fatal among them. It would indicate that the salvation of a population lies either in a complete absence of tubercle bacilli or a complete optimal tubercularization with its resulting immunization.

By physical well being is meant: Freedom from hunger, exposure, undue physical stress, pathologic fatigue, industrial pulmonary hazards, and organic disease. A few examples of lack of physical well being are pauperism, inadequate housing, employment involving extreme physical strain.

Periods of special physical stress are the postadolescent period, pregnancy, parturition and lactation and acute illnesses such as pneumonia

and influenza. Alcoholism is a definite factor contributing to a high tuberculosis death rate.

By employment of good medical and public health facilities is meant: competent medical care within the reach of all classes, the possession of enough knowledge by all classes to cause prompt and continuous employment of such facilities; early detection and proper isolation of infectious cases and knowledge of good personal hygiene.

Research in Tuberculosis, Kendall Emerson, M.D.:
J. A. M. A., Vol 94, No 11, March 15, 1930.

The Medical Research Committee of the National Tuberculosis Association is pursuing investigations in three important fields: the study of light, a study of the history of infants in tuberculosis and nontuberculous environments, and studies in the biochemical analysis of the tubercle and other acid-fast bacilli with the effect of their various components on the live animal cell.

Laboratory work on the tubercle bacillus started immediately after the discovery of the micro-organism by Robert Koch. In 1921, it was realized that there could be little hope of further progress in our knowledge of the disease and little change in treatment until investigation of the bacillus itself was vastly extended along chemical and biologic lines. For this purpose, the Medical Research Committee adopted a cooperative plan whereby a considerable number of outstanding specialists were to carry on productive investigations, the results to be correlated by frequent conferences. Complete standardization of products is achieved by a synthetic medium for the growth of the bacteria.

Up to the present time, five varieties of bacilli have been thus produced and are being subjected to analysis and test—the human tubercle bacillus, (H37), the bovine, avian, nonspecific timothy grass and lepra bacilli.

So far as the comparative analysis has progressed, certain facts have been revealed.

1. A specific reaction has been found from the introduction into a normal animal of the pure protein substance isolated both from the bacillus itself and from the medium on which it was grown.

2. An entirely different result has been found from the introduction of a fat fraction from the bacillus into a normal animal. This fraction is a stimulus to the growth of one of the cells of the body, the monocyte in which the tubercle bacillus grows.

3. The polysaccharides of the human tubercle bacillus have been shown to possess a killing power for tuberculous animals and, as every tuberculin contains these polysaccharides, this fact becomes of great importance.

UROLOGY and SYPHILOLOGY

Edited by Rex Bolend, B.S., M.D.
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Jaundice Associated with Antisypilitic Therapy.
L. Lortat-Jacob and J. Roberti, Bull. Soc. franc. de dermat et syph., 35:865, 1928.

The recent article of Ravaut on this subject has occasioned this article, a brief record of twenty-

four cases of icterus observed by the authors in the past three years. Of these twenty-four cases there were only two non-syphilitic ones; one of the latter had pemphigus, and the other was given neoarsphenamine prophylactically. The authors state that this experience showed that arsphenamines were not the only antisymphilitic remedy that might provoke jaundice. It was concluded that no relation existed between the dose of arsphenamine and the development of icterus, and that there is no relation of the status of the Wassermann reaction to the development of jaundice.

Latent Biliary Retention in Syphilis. Babalian, *Bull. Soc. franc. de dermat. et syph.*, 35:870, 1928.

The author has investigated latent biliary retention in various stages of syphilis and under different conditions. He states that 50 per cent of primary cases show evidence of biliary retention (subicteric jaundice), in a moderate and fleeting form, that it is more evident in the florid secondary period, and was present in 90 per cent of syphilitic patients. There is an increase of urobilin and biliary salts in many cases of syphilis; its frequency is less in later stages of the disease (from 12 to 50 per cent). In the early stage, latent biliary retention is a consequence of hepatitis with hyperfunction of the organ, while in later stages it is probably the result of cirrhotic change. Studies of the author on this question lead him to see in latent biliary retention a condition resulting from several factors; therapeutic shock, hepatic Herxheimer reaction and a special toxic action on the erythrocytes.

Jaundice Associated with Antisyphilitic Treatment. Milian, Lathe and Delarue, *Bull. Soc. franc. de dermat. et syph.* 25: 873, 1928.

The recent article of Ravaut on this subject has also occasioned this communication. Milian and his collaborators have first recalled the historical aspects of the question (only the French literature is mentioned) and shown the varied opinions that have existed on this subject.

One hundred nineteen cases of icterus have been seen, in Milian's service, fourteen of which were not given antisymphilitic medication. Ten of the cases were associated with a roseola and neoarsphenamine was administered with rapid disappearance of the jaundice. None showed any toxic phenomena. Of the five deaths in the whole series of cases, only one might reasonably have been attributed to arsenical therapy. Sixty-four cases appeared during the secondary stage, thirty-eight during the tertiary stage and three in heredosyphilitic patients, the author states.

The number of cases of icterus which appeared during the treatment with mercury and bismuth was greater than those with arsphenamine. There was evidence of recurrence rather than medicinal intoxication when the cases of post-therapeutic icterus appeared most frequently from thirty to sixty days after discontinuation of treatment. Of the 105 cases of jaundice in which antisymphilitic treatment had been given, 79 were attributed to syphilis; the others to toxic or infectious agents. As to treatment when icterus occurred, Milian has always continued arsphenamine medication in those cases in which syphilis was present. The medication was perfectly agreeable

to sixty of the patients; but the remainder were not given the treatment when extraneous causes appeared, with the exception of four in whom definite therapeutic contraindications intervened.

These figures show definitely the syphilitic pathogenesis of the icterus, and confirm the opinion which Milian has always championed. There is a definite distinction between icterus occurring "inter-therapeutically" and that developing post-therapeutically. The latter may be compared to neuro-recurrences, but the former are not so easily interpreted; they are probably instances of arsenic resistant organisms. The criticism that the jaundice may have disappeared is refuted by Milian's experience. For the probable instance of arsenic resistant organism, a change of antisymphilitic remedies is perhaps advisable, but certainly not a renunciation of treatment.

The Pathogenesis and Treatment of "Para-arsenical" Icterus. A Sezary, *Bull. Soc. franc. de dermat. et syph.* 35: 883, 1928.

Sezary has observed 24 cases of icterus in 1600 syphilitic patients since 1921. His method of solving the much discussed question of jaundice is by detailed observation and records of these cases. He has always stopped arsenical and other antisymphilitic treatment when icterus has occurred in his patients; there has always been a rapid and complete cure of the complication. His treatment depends on circumstances; if active syphilis is present, mercury and bismuth are substituted for arsphenamine; if there is no syphilitic activity, all antisymphilitic treatment is stopped until jaundice has disappeared; then treatment is resumed with mercury and bismuth followed by the cautious administration of an arsenical preparation.

Results of Radiotherapy of the Sympathetic System in Supramalleolar Erythrocyanosis, Acro-Asphyxia, Raynaud's Disease and Crural Ulcers. J. Gouin and A. Vienvenue, *Bull. Soc. franc. de dermat. et syph.* 35:924, 1928.

The authors originated the method of spinal irradiation for lichen planus and applied it to the foregoing conditions. When the roentgen rays are applied to the large vascular areas (Scarpa's triangle, axillae), over the vertebral column, and to a cutaneous surface, they have noted an influence on the number of circulating leukocytes. The author states that the hematologic change is similar to that noted after periarthritic sympathetic function. In the disease mentioned, they gave filtered (over the vascular trunks) and vertebral radiation.

Their results were good, comparable to those obtained with periarthritic sympathectomy. Raynaud's disease, in two cases were cured and rapid cicatrization of atonic ulcers of the legs was effected. A marked improvement and cure was reported for all of the twenty-two patients with supra-malleolar erythrocyanosis, the authors write.

Contribution to Our Knowledge of Trichoepithelioma. A. Fuhiwara, *Japan J. Dermat. & Urol.* 27:1 (Oct.) 1927.

The author reports the case of a tumor the size of a hazelnut in which the condition was

diagnosed clinically as atheroma. When it was sectioned, there could be seen many epithelial strands detached from the wall of an atheroma and arranged in interstices. In these strands were many horny cysts, which by following through serial section, he was able to demonstrate that the horn in these cysts was gradually transformed into a colloid-like material. The skin in this region was entirely without sweat and sebaceous glands and the arrector pili muscles.

Hematorporphyria Congenita. K. Matsuoka, Japan J. Dermat. & Urol. 28:1 (June) 1928.

A report of the author on three new cases of hematorporphyria congenita makes a total of nineteen in the literature. A vesicular eruption with serous content appeared on the face and the dorsum of the hands and feet, in his cases early in life. This eruption healed by drying up of the crusts, and was followed by atrophy, superficial scarring and hyperpigmentation. In two cases in which the urine was the color of port wine, the spleen could be easily seen. In these cases the hemoglobin and red cell content were 20 per cent below normal. An eruption appeared in the third case; it disappeared when the patients were kept indoors and protected from the sunlight.

The author's conclusion is that these patients are sensitive to something in the sun's rays which causes a gradual hemolysis, resulting in an enlargement of the spleen. Therefore, the urine containing porphyrin was exposed to extensive spectral investigations.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Generalized Osteitis Fibrosa. I. Seth Hirsch. Radiology, XII, 505 and XIII, 44, June and July, 1929.

Osteitis fibrosa is a disease with polymorphous manifestations. Leontiasis ossea, the cyst, the giant-cell tumor, and simple fibro-osteoid changes, any or all may occur in a generalized osteitis fibrosa.

X-ray examination permits study of various stages in the same individual. Paget called the disease osteitis deformans; von Recklinghausen, osteitis fibrosa. The latter grouped osteitis deformans and osteitis fibrosa with rickets, and osteomalacia under the general heading of malacia, and also included osteogenesis imperfecta. The distinction between these is a relative and not a specific one.

In all, there is softening, produced by resorption, and substitution of fibro-osteoid tissue, the end result depending upon the nature and intensity of the reconstructive effort. Typical Paget's it a disease of late life; von Recklinghausen's of early life; but no hard and fast line can be drawn between them. The lesions may involve part of a bone, an entire bone, or several bones.

The roentgen differentiation between a giant-cell tumor and a true sarcoma is frequently impossible. Involvement of the bones of the hands and feet, especially in the first three metacarpals, occurs in nearly every case. The lesions are usually small but distinctive.

While the age of incidence of Paget's disease is usually the third or fourth decade of life, numerous cases in the second decade have been reported. The disease develops very slowly and subjective symptoms appear comparatively late in its course. The early stages have few or no subjective symptoms.

The evidence from the cases reported by the author and from numerous cases in the literature points to the frequent commencement of the disease in childhood, at times in its very early years. There seems to be a strong hereditary factor in many cases. The changes occurring in childhood are not the typical hyperostotic metaplastic malacia seen in adults, but the hyperplastic types of malacia.

The author reports: (1) a case studied by radiograms over a period of sixteen years; (2) three children of the same family showing the early stages of the disease; (3) a case showing an association of metaplastic and hyperplastic malacia, studied in several hospitals over a period of years, the hyperplastic process manifesting itself by an excess of new subperiosteal bone production in irregular longitudinal bands, and the metaplastic process by the bone expansion, cyst formation and by the malacia; (4) a case of cystic metaplastic malacia with hyperostotic changes, in an infant; (5) a case of cyst and tumor forming metaplastic malacia in a female aged twenty-two years; and (6) two cases of cystic metaplastic malacia of the von Mikulicz type.

The author concludes that the period of onset of generalized osteitis fibrosa has been brought back to the earliest period of life; that the various phases give definite roentgen findings; that it is justifiable to infer that there are marked hereditary tendencies, and that these are congenital hereditary diseases.

The article contains sixty-eight fine illustrations, reproductions of photographs and radiographs.

Spondylitis Deformans Und Trauma. (Spondylitis and Trauma). Gaugele. Ztschr. f. orthop. Chir., LI, 74, 1929.

Gaugele has studied a great many roentgenograms of patients with fracture or other injuries to the spinal column and discusses the important question as to whether or not arthritis or spondylitis deformans may be caused by traumatism. He comes to the following conclusions: The origin of spondylitis deformans from traumatism has not yet been proved. It is entirely impossible that a slight trauma may cause such changes. Even after severe fractures in younger, as well as older persons, the typical changes of spondylitis deformans generally are not seen. The development of the typical changes requires years and not weeks. But it may be acknowledged that the symptoms of the pre-existing spondylitis, especially the pain, may be markedly aggravated by the trauma.

Osgood-Schlatter's Disease. Robert B. Taft. Radiology, XII, 414, May, 1929.

The author reports eight new cases, and one old one. He believes the disease much more common than the number of reported cases would seem to indicate. It is far more frequent in boys.

Being an epiphysitis, it can begin only between the time of appearance of the epiphysis and of its final union with the tibia, viz., between the ages of twelve and twenty-one.

There is usually the history of a slight injury, followed by continuous and severe pain, extreme tenderness, and some swelling, redness, and local heat.

The etiology is unknown, and the author states that the pathology is likewise unknown, no record being found of any microscopic study. He believes that the condition is purely traumatic in origin, although the trauma is often slight.

A case studied radiographically seventeen years after its onset showed marked increase of bone production at the site of the old lesion.

In most cases simple splinting is efficient treatment. In some, a curettage of the tubercle or a bone peg, to anchor the patellar ligament, has been necessary.

Thoughts on the "Early Case" of Tuberculosis. Miles J. Breuer, Amer. Rv. Tb., Vol. 21, Jan. 1930.

The author attributes the difficulty in diagnosing early cases of tuberculosis to the unwillingness of patients to accept such a diagnosis when there are no clinical symptoms from the lungs, and to the fact that instruction in modern knowledge of tuberculosis was not available during their student days to the majority of men now in practice.

The word "tuberculosis" is too closely associated in the mind of the public with the medical professions conception of that disease forty years ago—i.e., cachexia and fever, a hollow cough, germs in the sputum, hopelessness. They refuse to accept the rational scientific conception of tuberculosis and its comparatively simple cure and go from one physician to another in the hope of finding a more pleasing diagnosis, consequently allowing cases in many instances to develop to a stage at which adequate cure is impossible.

Breuer believes that with circumstantial evidence present, tuberculosis should be the first consideration, not the last. The indisposed individual, the chronic gastrointestinal case, the underweight, the vague and chronic complainer should be considered primarily as possible cases of tuberculosis. Not until these cases are recognized and dealt with properly will the tuberculosis morbidity be lowered.

Comparative Radiographic and Anatomical Studies of Intestinal Tuberculosis. By M. Maxim Steinbach, Am. Rv. Tb., Vol. 21, Jan. 1930.

Tuberculous ulceration of the intestines is usually secondary to pulmonary tuberculosis, and, as a rule, a terminal phenomenon in the course of chronic phthisis. Clinicians find the diagnosis of intestinal tuberculosis very difficult; nearly all symptoms and signs may fail even in the presence of severe intestinal lesions.

Stierlin made much progress with the use of the roentgenograph. His method of examination is simple: two glasses of a liquid bismuth meal are given, and roentgenographs taken after 6, 8 and 24 hours. The classical Stierlin sign is the failure to visualize the caecum and ascending

colon, whereas the terminal ileum and the transverse colon are filled. He emphasizes the importance of loss of haustrations, the irritability of the affected parts and the rapid emptying of the entire large intestine within 24 hours. Of 7 cases described by Stierlin, 6 were correctly diagnosed as ileocaecal tuberculosis as proved by surgical operation. However, reviewers of Stierlin's work state that Stierlin's sign is by no means pathognomonic of ileocaecal tuberculosis, being found also in cancer. Pirie advanced the theory, as proved by roentgenographic study, that in each case of tuberculosis caecum, the caecum never filled up with the barium meal.

At Montefiore Hospital, 67 cases were studied, clinically, roentgenologically and at autopsy. The technique of Stierlin and Brown and Sampson was used. These cases were divided into two main groups: (I) those in which the roentgenological findings coincided with autopsy findings, which comprises 32 cases; and (II) those in which the roentgenological findings were at variance with autopsy findings, which contains 35 cases. Group I contains 20 cases positive roentgenologically and at autopsy; 5 suspicious roentgenologically for positive findings and at autopsy positive; 7 roentgenologically negative and negative at autopsy. Group II contains 3 cases with roentgen pictures of intestinal tuberculosis, but at necropsy no tuberculous ulcerations were found; 18 cases with roentgen pictures that were normal, but at necropsy more or less ulceration in the intestines was found; 6 cases, which at necropsy showed tuberculous ulceration of the intestines, but the roentgen findings were indefinite; 4 cases in which the roentgen findings were indefinite, but at necropsy the intestines were found to be unaffected; 4 cases which indicated tuberculous colitis, but autopsy revealed the lesions to be located solely in the small intestines.

On the basis of 67 cases, it was concluded that the roentgenological signs usually considered diagnostic of this condition were highly unreliable in over 52 per cent of cases studied by the author.

BOOK REVIEWS

Obstetrics For Nurses. By Charles B. Reed, M. D., F. A. C. S. Professor of Obstetrics, Northwestern University Medical School; Chief Obstetrician Wesley Memorial Hospital, Chicago, and Charlotte L. Gregory, R. N., B. S., M. D., Adjunct in Obstetrics at Wesley Memorial Hospital; Clinical Assistant in Obstetrics at Northwestern University Medical School, Chicago. 144 illustrations, with 2 colored plates. Third edition, Cloth 399 pages, Price \$3.00. C. V. Mosby Company, St. Louis.

Next to operating technique perhaps there is nothing so important to the nurse as a thorough knowledge of obstetrics, for as a rule, the nurse is on the ground and in full charge of the case long before the physician arrives, and after his departure. It follows that the normal and abnormal should be well in her mind at all times, often spontaneous normal delivery occurs with only the nurse present. Under such condition an intelligent nurse is the mainstay of the patient, the physician and the family. This little volume contains 25 chapters touching upon practically every phase of obstetrics. It is finely illustrated and so plainly written that anyone of average intelli-

gence should have no trouble in mastering it's contents.

Manual of Physical and Clinical Diagnosis. By Dr. Otto Seifert (Late Professor of Medicine, Wuerzburg) and Dr. Friedrich Mueller (Professor of Medicine, II Med. Clinic, Munich). Authorized translation from the twenty-fourth German edition by E. Cowles Andrus, M. D., Associate in Medicine, Johns Hopkins University, Associate Physician, Johns Hopkins Hospital. 140 illustrations and 3 colored inserts. Leather, 543 pages, Price \$6.00. J. B. Lippincott Company, Philadelphia.

The many German editions of this compact work testify to it's worthiness. The little volume is of that convenient size which may be made a companion by the physician who has a few odd minutes or hours as the case may be, to refresh his memory and information. In addition to eleven chapters it contains an appendix, which includes a table, summary of symptoms and therapy of acute intoxications, mineral springs and baths, drugs and dosage and a table of troy and equivalents.

Infant Nutrition. A text book of infant feeding for students and practitioners of medicine. By Williams McKim Marriott, B. S., M. D., Professor of Pediatrics, Washington University School of Medicine; Physician in Chief, St. Louis Children's Hospital, St. Louis. 372 pages, Price \$5.50. C. V. Mosby Company, St. Louis.

The nutritional disturbances of infants and children have rightly assumed enormous importance. This has been brought about by scientific study of the physiology, intestinal flora, and pathology of infants and children. Regardless of minor disagreements the scientific pediatrician has arrived at some very thorough agreement as to the diagnosis, treatment and procedure of the helpless infant. Cases formerly regarded as hopeless are now successfully handled by the skilled pediatrician. Certainly scientific feeding is a life saving task. Very desperate cases are quickly bettered and apparently snatched from an early grave by proper feeding. Professor Marriott is one of the leading authorities of the country on pediatrics. His work will be received with favor by those having the problems of infant life confronting them.

Minor Surgery. By Arthur E. Hertzler, M. D., Chief Surgeon, Halstead Hospital, and Victor E. Chesky, M. D., Chief Resident Surgeon, Halstead Hospital. Cloth, 602 pages, Price \$10.00. C. V. Mosby, St. Louis.

As we have noted before everyone, whether surgeon or physician, is called upon to do more or less of what is known as "minor surgery". It was then called to your attention that minor surgery, if neglected or if improperly attended to, could result in prolonged morbidity and at times tragic mortality, and such unnecessary terminations might be avoided by the physician thoroughly understanding the many little pitfalls brought about by what is covered by the word minor. This second edition by Hertzler and Chesky should be acquired by every practitioner who wishes to keep himself informed.

The Normal Diet. A simple statement of the fundamental principles of diet for the mutual use of physician and patient, by W. D. Sansum, M. S., M. D., F. C. P., Director of Potter Metabolic Clinic, Department of Metabolism, Santa Barbara Cottage Hospital, Santa Barbara, Calif. 134 pages, Cloth, Price \$1.50. C. V. Mosby, St. Louis.

The question as to what is the best diet has assumed, in the last few years, a prominent place in the stage of publicity. Food faddists have undoubtedly done a great deal of damage to thousands of people by causing them to go upon dangerous diets. Dr. Sansum considers the requirements of the body under various conditions, the acidoses and gives several pages of menus fitting the physical needs under certain conditions.

Surgical Diagnosis. Volume III and Separate Index Volume, completing the new work by 42 American Authors. Edited by Evarts Ambrose Graham, M. D., Professor of Surgery, Washington University Medical School. Three Octavo volumes, totaling 2750 pages, containing 1250 illustrations, and Separate Index Volume. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$35.00 a set.

This third volume and index completes what is already recognized as a very fine, thorough and detailed work on Surgical Diagnosis. As noted before the entire work is made up from contributions of many of the leading surgeons of the United States. The work is profusely illustrated, so far as is noted, all from originals. There are some beautiful colored plates all which lend much to the clarification of the text. The work should be in the hands of every surgeon and student of medicine.

The Collected Papers of The Mayo Clinic and The Mayo Foundation for 1929, Volume XXI. Edited by Mrs. M. H. Mellish, Richard M. Hewitt, M. D., and Mildred A. Felker, B. S. Octavo volume of 1197 pages with 279 illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$13.00 net.

This is the annual volume by the Mayo Clinic and the Mayo Foundation by the division of publication of those organizations. Of course it can only partially reflect a tremendous amount of work, observations, findings and results of one of the world's great medical centers. 471 papers were used from which to make selection; ninety reprinted, twenty-three abridged, sixty-eight abstracted and two hundred ninety given reference. A volume of this type belongs not only to the surgeon but in the library of every practitioner of medicine for it naturally covers many medical as well as surgical matters.

THE SURGICAL CLINICS OF NORTH AMERICA. (Issued serially, one number every other month). Volume 10. No. 2. (Chicago Number April 1930). 252 pages with 72 illustrations. Per clinic year (February 1930 to December 1930). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London.

This issue of the Surgical Clinics of North America is very valuable on account of its ex-

treme practicability. Among the notable contributors are those from the clinic of Dr. Arthur Dean on "Gallstone Disease" "Congenital Pyloric Stenosis" "Appendicitis" "Double Undescended Testes" and "Carcinoma of the Breast." Kellogg Speed presents "Tumor of the Chest Wall" and "Small Joint Infections;" Percival Baily and Paul C. Bucy, "Tumors of the Spinal Canal;" David C. Straus and Henry H. Rubin, present an "Analysis of One Hundred Consecutive Thyroidectomies for Goiter with Hyperthyroidism;" Gold-er L. McWhorter presents "Three Cases of Ligation of both the Femoral Artery and Vein in Thrombo-Angiitis Obliterans;" while George M. Curtis presents the problem of "Intrathoracic Goiter;" Fredrick Christopher presents "Ulcerative Arteritis, a Complication of Ulcerative Colitis;" "Fracture of the Second Cervical Vertebra;" "Necrosis of Ileum Following Pelvic Inflammatory Disease;" "Repair of Hepatic Duct" and "Paraffin Injection as an Aid to Excision of a Lateral Cervical Fistula." Bernard Portis presents "A Case of Coronary Thrombosis Simulating an Acute Surgical Condition of the Abdomen," as well as "Five cases of Fulminating Appendicitis in Children with a Low Leukocyte Count." Edwin M. Miller presents "Two Cases of Strangulated Hernia Due to Ruptured Appendix" "Operative Repair of Supracondylar Fracture of the Humerus in a Child." C. B. Higgins presents "Four Cases of Hydronephrosis." Chester C. Guy presents "Paget's Disease: It's Differentiation from Metastatic Carcinomatosis of Bone." While Wilhelm C. Heuper and Lester E. Garrison presents "Surgical Aspect of Agranulocytosis."

This does not entirely describe all of the offerings of this issue but the reader may be assured that this is a very interesting volume and well up to the high standard maintained by these issues.

TO GOLF OR NOT TO GOLF?

The problem of physical exercise for persons who are under medical care as well as for those in health is engrossing the attention of physicians more than ever. The need of recreation is stressed and the provision for it has become a feature of the modern program for a well ordered life. For those who spend a large part of their waking hours in physical toil there is little occasion to proclaim the alleged virtues of muscular exercise. Among persons who cannot properly be classed as "workers" from the standpoint of muscular performance, the value of physical activity, it is said, is not duly appreciated. The gospel of exercise has long been preached, particularly to those engaged in sedentary occupations, often without any regard to possible limitations of the physiologic mechanism that is involved. The implication that exuberant health is dependent on violent exercise needs to be carefully examined, particularly with respect to the universal physiologic basis of the expected hygienic benefits.

The value of exercise is not the development of large muscles or in accomplishing athletic feats. The attainment of physical poise, symmetry of form and harmonious grace, and the furtherance of proper activity of tissue cells and organs and the elimination of waste products, are the chief ends sought. In fact, good health as a whole, and not a highly developed muscular system, should be the objective of exercise.

Golf has attained tremendous prominence in this country during the present century. The hold of the game on our population is attested by the growing number of municipally owned golf courses. Medical associations now demand an opportunity for their members to "use their clubs" during the intervals between scientific sessions and clinical demonstrations. Little wonder that the untutored layman accepts this as *prima facie* evidence for the wholesomeness of the outdoor game! Yet, as far as disputable evidence is concerned, one may ask with justification: "What is the real hygienic significance of golf?"

The first dilemma is that of the age factor. As a recent writer¹ has remarked, on one side is the opinion that golf is a game for old persons and that a man should play golf only when he is unable to participate in other kinds of sports. The fact that retired business men are so often pictured as playing golf has helped much in developing this impression. On the other side, it is asserted that a "real game" can be played only by young people, and as proof of this it is shown that the "champions" are young people. Obviously, other criteria than age must be established before the controversy about hygienic recreation and continued effort can be profitably discussed. Accordingly, Karpovich of the International Y. M. C. A. College at Springfield, Mass., has made a series of observations under the auspices of the Burke Relief Foundation. The major effort was directed to finding the reaction of the heart and blood vessels to the game among golfers of diverse ages, different sex and various conditions of health among whom were some patients with heart disease. Weight, heart rate and blood pressure were taken in the reclining and the standing positions. Schneider's cardiovascular test was given before and after the game. There was usually a decrease in weight after the game, ranging from one to four pounds. This decrease was not a true loss because subjects were weighed in their clothes both times. Patients who did not show change in weight had drunk plenty of water. Karpovich points out that in healthy persons the heart rate increases with metabolism. In general the heart returns to normal in a short while, often to subnormal for a short period. His study showed that these observations were true with the well and convalescent golfers. The heart rate and the time needed to return to normal plainly indicated the amount of energy expended. It was shown that women expend less energy in playing than do men. There was no indication that any one overdid the game. The energy spent in playing golf should not be minimized. It is estimated that a person walking at a rate of four miles an hour over a conventional level course of 6,000 yards spends as much energy as he would in lifting himself five times to the top of the highest skyscraper in New York; or, walking with a speed of about two miles an hour, he would spend enough energy to lift himself a little over four times to the top of the same building. As a matter of fact the golf courses are usually located on hilly grounds, and this greatly increases the output of energy necessary to cover the playing distance. To all this the work performed in practice and actual shots and in searching for the ball must be added. And when it comes to searching for lost balls—what a difference!

From the experience gained in the examination of more than a hundred golfers, Karpovich sug-

gests that a too great loss of weight following exercise with a slow return of weight is bad. Lower blood pressure, particularly in the standing position with higher heart rate and a slow return to normal after moderate exercise is an indication of poor condition. Sleeplessness, restlessness, fatigue in the morning and lessened appetite after moderate exercise are indications of poor condition. Abnormal heart or kidney conditions increase the dangers in severe exercise. Moderate exercise cautiously taken will be of advantage. Every one should be cautious about eating too soon after exercise. Persons out of condition should be careful to rest before eating. Patients recovering after some sickness naturally have lower endurance and may collapse even after playing a few holes. Usually they walk and play slowly and it is better to allow them to play not more than thirty minutes on a plain, even course. There is strong evidence that such exercise is beneficial to them. Patients with heart disease with well developed compensation react in the same way as normal persons, and eighteen holes played by some do not seem to have any harmful effect. In the light of such advice the question to play or not to play is one that must be answered separately for every player.—*Jour. A. M. A.*, May 4, 1929.

1. Karpovich, P. V.: A study of Some Physiological Effects of Golf, *Am. Phys. Education Rev.*, November, 1928.

IS BISMUTH ABSORBED?

The roentgenograms made from patients treated with intramuscular (buttocks) injections of bismuth subsalicylate, potassium bismuth tar-

trate, bismuth sodium tattrate and one unknown salt are presented by Bernhard Erdman, Indianapolis (*Journal A. M. A.*, April 13, 1929). He makes no attempt to evaluate the various bismuth preparations from the clinical standpoint. There is no question, he says, that bismuth favorably influences the blood Wassermann reaction in some patients. There is marked individual idiosyncrasy to the metal, as evidenced by the "blue gums."

ARTHRITIC PAIN IN RELATION TO CHANGES IN WEATHER

Edwin B. Rentschler, Francis R. Vanzant and Leonard G. Rowntree, Rochester, Minn. (*Journal A. M. A.*, June 15, 1929), made a study not to prove the existence of a relationship of arthritic pain to weather change but to determine whether or not such a relationship actually exists. They feel certain that many of their patients with arthritis can, through an increase in the severity of their pain, sense the approach or presence of storms. In a group of 367 patients studied for a year there was a positive relationship for 72 per cent of the time between the curve of pain and that of barometric pressure. For 21 per cent of the time the relation was equally definite, but as one line went up the other went down. In only 7 per cent of the time was a relationship undemonstrable. For more than 90 per cent of the time there was a relation between the presence of storms and an increase of pain. Observations on humidity, temperature and atmospheric electricity were inconclusive, although it is still possible that these agents working together have some effect.

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PROGRESSIVE MUSCULAR ATROPHY.—REPORT OF FIVE CASES IN ONE FAMILY

W. S. MASON, B.S. M.D.

CLAREMORE

R. C. MELOY, M.D.

CLAREMORE

The various types of muscular dystrophies have been fully described in the many text books and previous papers and it would be unnecessary repetition to give the classic description of the disease.

The purpose of this paper is to present a family history with five brothers and sisters affected; to present different types in the same family; to stress a particular etiological factor; and to give the results of some endocrine treatment in two of the cases.

FAMILY HISTORY

Mrs. P., age 52, the mother of twelve children, is an apparently healthy woman of middle age, whose family history so far as she knows has been negative for any muscular, mental or nervous abnormalities. She has been in good health all of her life with the exception of excessive nervousness at the menopause which was passed at 45 years.

She began menstruating at 11 years of age. Was married to M. C. at 17 years of age. She gave normal birth to five children by this marriage. Two were premature and died in a few days. Three are living.

Mrs. B., age 34, physically and mentally normal—has four children, the oldest being 14 years of age. All are normal.

D. R. C., age 33, physically and mentally normal, has five children living in good health, oldest is 9 years of age. All are normal. One died suddenly when two weeks of age.

W. C., age 30, physically and mentally normal. Has four children living, all normal. One died at birth, cause not known.

At the age of 25 Mrs. C. married Mr.

P. a maternal first cousin. Mr. P. is normal physically and mentally with no abnormal family history. His past life is negative for venereal infections but he has been a fairly heavy user of alcoholic drinks.

During this marriage Mrs. P. has given birth to seven children, four boys and three girls, all living. They are all normal mentally and nervously except case no. 6 who will be discussed in the case history. Of these seven children five have developed some form of muscular dystrophy.

(1) Mrs. W., age 27, normal birth, no childhood illness of consequence except an illness in her third year which began with a bowel condition but later was called "Brain Fever" by her physician. She was ill about 2 months. Her health was good from then till about the twelfth year. The only abnormal condition was bedwetting until 9 years of age. Breasts developed and pubic hair appeared about the twelfth year but menstruation did not begin until the fifteenth year.

During her twelfth year, she developed a peculiar gait in walking. This became worse until she could not run and would fall if least overbalanced. She could not raise herself from a sitting or prone position without using hands and walked slowly with a waddling gait. This condition has been slowly progressing to the present time.

At present time she is in fair physical condition. Excepting a chronic nephritis she has no organic abnormalities. Legs are not atrophied but somewhat hypertrophied. She is very weak, especially the thigh, hip and pelvic girdle muscles, and has some sway back. Upper arms and shoulders and scapular muscles showing some atrophy and about 50% loss of strength—tendon reflexes absent—Wassermann negative. She is the mother of one child, age 7, which is normal physically at present. This case though beginning in later childhood conforms more closely to the pseudohypertrophic type.

(2) C. P., age 21. Normal birth, no se-

rious illness. Has some curvature of spine since infancy—bedwetting until 10 years of age. Puberty at about 14 years—at ten years of age he began to develop weakness in legs, a waddling gait and fell frequently. This condition has gradually increased. At present time patient is fairly well nourished young man. He walks with difficulty, having a peculiar waddling gait and throwing his feet sideways; also, he has a very decided sway back. The muscles of the legs, thighs, hips and lumbar region are badly atrophied—all deep reflexes are gone—has difficulty raising knees. Muscles of lower legs though somewhat atrophied, still have fair amount of strength. He does not seem to be affected from the waist upward. This case is evidently a pseudohypertrophic type.

(3) Miss N. P., age 19—No serious illness—bedwetting up to present time. Breasts and pubic hair developed at 12 years of age. Menses began at 16 years. Had no trouble until 15 years of age when she began to have some weakness in back and a noticeable prominence of scapula.

Physical examination shows only an atrophy of the muscles attached to the lower and medial sides of the scapulae which gives a winged appearance to the scapula. There are no signs of lumbar, hip or leg muscular involvement. This case conforms more closely to the juvenile type of the disease.

(4) C. P., age 16. History negative until seventh year when it was noticed that he would fall easily. Then he developed the typical waddling gait, sway back and difficulty in rising from sitting or reclining position. The process extended rather rapidly in this case and at the age of 13 he was confined to a wheel chair.

Physical examination shows a well nourished boy—practically entirely paralyzed. He can still move his feet and hands but cannot raise knees, move hips or raise upper arms. All deep reflexes are absent. Muscles of the thighs, hips, back, shoulders and upper arms are markedly atrophied. Only the head and neck are not affected. Another pseudohypertrophic type.

This boy was put on adrenal extract three years ago; at that time he was very thin and the disease was rapidly progressing. Since that time the course of the disease has been very slow, sometimes apparently stationary for months and he has gained many pounds in weight.

(5) Miss O. P., 15 years of age—apparently normal at present time but has the same history of genital and breast development at 12 years of age but she has not begun to menstruate yet.

(6) F. P., age 13, has had no serious illness. At 11 years of age he began showing weakness of the hips and thighs. Would fall easily—gradually developed to where he could not run or walk fast. Was put on suprarenal and testis extract last year. The course of the disease has been slowed but is still progressing to a certain extent. He can walk and handle himself well, but shows a beginning atrophy of the thigh and girdle muscles.

He is the only one of the children who seems to be affected the least mentally. He is very perverse and does not keep up in school, having been kept in the same grade at school for the past 3 years.

(7) M. P., 11, normal physically at present time except for especially large calves of legs.

The points I wish to stress are:

1. Five cases in a family of seven children.

2. Blood intermarriage as an etiological factor.

3. Males are affected earlier and the disease progresses faster than in the females.

4. Females develop normally but menses are delayed.

5. Different types in same family—Cases 1, 2, 3, 4 and 6 conform more closely to the pseudohypertrophic type while case 3 conforms more closely to the juvenile type.

6. Endocrine products seem to lessen the rapidity of progress and help the nourishment in the two cases in which it has been used.

THE RATIONAL DEVELOPMENT OF MEDICINE

W. P. NEILSON, M.D.

END

When one views the high spots of medicine from its very mythological beginning and traces its evolution down the ages up to the present time, he becomes appalled at its slow and rational development. It has been a slow and rather tedious process

for at least two reasons: First, time has been a fundamental prerequisite to the birth of such gigantic subjects; and second, it deals with the most vital spot of the human family, its physical and mental welfare. Its course is too large for proper assimilation, too exquisite for summary by mere human intelligence.

Self preservation and behavior while ill is decidedly an inborn characteristic; as Roswell Park tells us, the lower animals, when sick or wounded, instinctively lessen or alter their diet, seek seclusion and rest, and even in certain cases seek out some particular herb or healing substance. We therefore, realize that the prehistoric animal, less developed, from a physical and mental standpoint, than the highly sensitive human being of today, followed certain helpful procedures akin to modern medicine.

The science and practice of medicine have a dual inception. It remains today as a division between these two; the art of medicine and the science of medicine. Aesculapius, supposedly of Greek ancestry, mythically the son of Appolo and the nymph Coronus, was considered to be the "God of Medicine." Throughout all Greece huge temples were erected to his honor, places where the sick and afflicted could go for relief. Miraculous cures were often reported, and the services of this great person were much in demand. Many of the temples were conducted by Aesculapian priests, they having been endowed with particular powers of healing, and appointed his personal representatives. This perhaps forms to a certain degree the basis of modern psychiatry, because the practice was wholly an art.

Then came the great Hippocrates. "The Father of Medicine." This most remarkable individual was of Greek ancestry, and in his younger days was supposedly a priest of an Aesculapian temple; having had the training associated with the observation of many ill people, and having observed that many of these diseases were consistent in their manifestations, he was the first to place medicine on a rational foundation. He gave to medical literature some of its most classical descriptions of disease. With his efforts began the establishment of "The Hippocratic School of Medicine," which was formed in Athens, and later removed to Alexandria about the year 320 B. C. Such great men as Ptolemy Soter, Herophilus, Heraclides and Celsus

probably received their inspirations and guidance from his great work.

Of ancient men, history teaches us that Galen was a most colorful personality; educated among the last of the Alexandrian school, he later moved to Rome. The Roman physician, at this time, was perhaps more skillful than the Greek physician, especially the Roman surgeons. Galen, a Greek by birth, acquired the Roman aspect, consequently being possessor of both Greek and Roman virtues. He was a most fluent and accurate writer, as well as a keen observer. He was perhaps our first great anatomist, and gave to the world many very accurate anatomical descriptions. By force of law, however, his works of dissection were limited to the lower forms of animal life. At this period the dead human being was considered more sacred than the living, and nothing was looked upon with more horror than manipulation of the lifeless human body, thereby interfering with the migration of its soul. He was an outstanding man of his day and is foremost in his time.

Julius Caesar was of great aid in the advancement of medicine. He recognized the value of a healthy and strong army of men. He caused the physicians and surgeons to be elevated socially, by virtue of which their prestige and authority were increased. He attached to his armies medical detachments, and profited greatly by their services.

For the next ten centuries medicine made no progress. In fact there was great deterioration both in thought and action. Many of the useful discoveries were virtually forgotten, and the art and science of medicine and surgery reverted to ignorance and superstition. Absurd remedies were again used and magic healers proclaimed.

In the twelfth century Emperor Frederick II did a great service to surgery. He deliberately contradicted all past custom and law, issuing a decree that human dissection should be legal. He went further than this and issued an order that at least once in every five years a human body should be dissected in his kingdom. By virtue of this great step many of the mysteries of the human body were clarified and from that beginning a knowledge of the structure of the human body began to be acquired.

The great surgeon Pare was next to make his outstanding contributions which

have immortalized him among men. He treated infected wounds with burning oil, having previously conceived the idea that there was some evil source of life at work among the wounds of man. This treatment was exceedingly painful to the patient, and was followed by a large and frightful mortality. This mortality, however, was not as extensive as that previous to his treatment, because in those days a severe wound was almost certain death. Of particular interest in history, is that event which followed a great battle. Many men were lying wounded on the battle-field. Pare cared for them as quickly and efficiently as he knew how, but long before the last wounded soldier was reached the supply of oil had been extinguished. Knowing nothing else to do, he dressed the wounds of the remaining men with wet dressings and liquid solutions, which must have contained antiseptic solutions. That night his mental condition was so disturbed that he was unable to rest well, consequently he arose early and went to visit his patients with the full expectation of finding those treated in the latter condition to be near death. What he actually found was that those patients treated with burning oils were in great pain and many of them near death, while those treated by his newer method were comfortable and greatly improved. With the institution of such treatment a great contribution was made to the advancement of medicine. Other than this great contribution Pare made a most valuable addition to surgery with the introduction of the ligature for the discontinuation of hemorrhage. As simple as this may seem to us now, we taking it so much for granted, it was a most worthy addition, as the knowledge was not prevalent at that time that blood did circulate in the human body, because this great discovery was soon to follow, and was an evidence of the great work of Harvey.

About this time two great brothers were to make their debut in medicine and leave behind them accurate and definite knowledge which has never been surpassed. These two brothers were William and John Hunter, of England. Although they were great physicians from every angle, they have gone down in history largely because of their outstanding work in anatomy. They had at their disposal an abundance of material, because they so made it. Their original dissections were most exquisite.

Modern medicine, however, probably had its inception with the acquisition of a knowledge of physiology, pathology, bacteriology and chemistry. Pasteur and Koch, remarkable minds; original, creative and conservative, what unusual mentalists they must have been. Their ideas were not born in an instant but developed slowly and with definite progression. And it is with ease that the modern student follows them in their mental process; constant, sure, constructive and reasonable. Their ideas were that organic forces were at war, life is chemistry, disease has a chemical basis with the human family versus toxic forces, manifested through chemistry, liberated from micro-organisms and other sources of energy.

Such discoveries which have given a workable knowledge to the medical profession has certainly made surgery possible. It was for the internist, chemist and bacteriologist to pioneer the way. How helpless the bold surgeon of today would be without the basic knowledge given him by the more particular man of science. He would be helpless in his effort to combat shock, sepsis or any other of the allied conspirators of surgery, without this aid.

How often does one hear such a remark as this, "I hope to see the day when the field of internal medicine equals that of surgery, because in the past few years terrific strides have been made in surgery and so little added in the field of internal medicine." No statement could possibly be more absurd than one such as this. Surgery certainly owes the very existence of its vitals to fundamental medicine. When one observes the course of modern surgery, he cannot help but wonder if it yet continues along those same rational lines upon which it was founded. The science of surgery was first conceived to satisfy a need for emergency, especially during war, to save life. Then as our knowledge was broadened we recognized certain diseases as being surgical. Today, surgery is our one means of saving life in many instances from accidental injury. We have recognized such diseases as acute appendicitis as being surgical, intestinal obstruction and perforated visci. In other words, the application of the science of surgery to the human body, is a process primarily instituted to aid nature in her fight against obstructive and degenerative forces. When it ceases to be this then it is no longer an aid to the natural resources of the body but an added hazard for the

tissues to overcome. The most remarkable characteristic of the human body is its ability of compensation, and when given a chance, in many instances, its response and power of resistance is nothing short of miraculous. One cannot disobey, mechanically, the fundamental laws of physiology and anatomy and arrive at anything but a bitter end.

Frequently one sees cases who have been operated for a so called "fallen colon." or whatever name one chooses to attach to such a questionable condition. The procedure seems to be that of extensive suturing of the colon to lessen its lumen and stay its motility. In a very limited experience the writer has yet to see any but ulterior results from such a procedure. It will, after a while, recede into oblivion just as have the various plastic operations for kidney fixation, and many plastic procedures of the pelvis to say nothing of the epidemic a few years ago of gastric resections.

Recently at the bedside of a patient, a history about as follows was obtained. The patient, a female just past thirty, has had three major operations in as many years. At the first operation the abdomen was opened, the appendix removed and two ovarian cysts removed; about one year later the abdomen was again opened, the round ligaments shortened and a vaginal operation done below; one year later she was again operated, the uterus, both tubes, both ovaries were removed, a "fallen colon" found and extensive suturing apparently done. Today this patient presents a most pathetic picture. Her psychic condition is hopeless, she having been divested completely of the benefit derived from normal function of ovarian origin. There is a partial obstruction of the intestinal tract, its seat seems to be two fold, first at the pyloric end of the stomach, and all along the descending portion of the colon. The procedure of choice here is certainly worse than a puzzle and must have for its solution, one far wiser than I. If further surgery is resorted to, then a gastro-enterostomy must first be done, this will relieve one obstruction, then the whole large bowel must be resected, because there too is a definite obstruction.

At what places the viscera are traumatised, certain damage is done, the tissues are caused to be necrosed, and as a consequence adhesions form. The popularity of the diagnosis, "laparotomy" or

"surgical abdomen," is in no small way responsible for the popularization of excessive manipulation. It has offered the surgeon a haven of mental rest and an excuse from persistent effort in establishing a diagnosis, as a consequence the abdomen is opened in the midline with a large incision, the pancreas and intestines investigated, the gall bladder evacuated, the ovaries, tubes and uterus displayed, to say nothing of the veriform appendix, then the procedure is as it should be. This, of course, applies to chronic conditions, and not emergencies. Such cases, as could be more intelligently handled, the seat of dysfunction having studiously been arrived at.

Medicine having arrived at its present and glorious state, over a period exceeding two thousand years, having been born on a basis of conservatism, having been sponsored by an attitude of temperance, clothed in a sheath of tolerance, and undoubtedly directed by the God of nature, should stay free from the bounds of fanaticism. Aesculapian art, coupled with careful management and Hippocratic science, yesterday, today and tomorrow, remains steadfast and placed, and in a vast majority of cases will be rewarded by sound, comfortable and lasting results.

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PYELONEPHRITIS IN WOMEN

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ETIOLOGY AND PATHOLOGY

The gynecologist sees pyelonephritis as a complication of pregnancy, and the puerperium and in cases complicated with development of intrapelvic tumors and in post operative cases. It may occur as a sudden development, as an acute attack or very slowly as a chronic condition. This latter condition may follow an acute pyelonephritis, or may arise from a slight but progressive obstruction of a ureter. We observe this at times in women who have a prolapse of uterus with marked cystocele. Usually we may assert there are two causes responsible for the occurrence of pyelonephritis; the first is an obstruction to the outflow of the urine; the second cause is an infection. DeLee claims that bacteriuria is present in 15 per centum of pregnant women. Bacteriuria plus the presence of an enlarging uterus together with the distortion of the ureters incident

to the pregnant state accounts for the comparative frequency of pyelonephritis in pregnant women. It has been estimated that the normal pressure of urine in the kidney pelvis is 10 m. m. mercury and hence slight causes may check or impede the outflow of urine. In about two-thirds of the women coming to autopsy, the ureters, and particularly the right, have been found dilated and filled with urine. The colon bacillus is usually the infecting organism, but the streptococcus, the gonococcus, the tubercle bacillus, the bacillus albus et cetera, have been reported as a cause of pyelonephritis. These organisms are conveyed to the kidney pelvis and ureter in different ways, as by way of the kidney tubules, or excreted through the kidney (bacteriuria), or conveyed through the blood stream, or from surrounding structures (as colon and appendix), or by way of the lymph channels, or by traveling up from the bladder along the mucous membrane, as we previously believed, or even by floating from a lower to a higher level in a quantity of stagnant urine in a ureter whose lumen is obstructed or by way of the peri-ureteral lymphatics to reach the subpelvic areolar tissue which envelops the blood vessels of the kidney at their entrance into the pelvis.

Crabtree and Cabot recently declared that the streptococcus and staphylococcus produce a different set of lesions in the kidney than that produced by the typhoid and the colon bacillus.

The colon-typhoid group causes acute pyelonephritis, acute pyelitis, chronic pyelonephritis, and pyonephrosis, whereas diffuse suppuration, perinephritic abscess, septic infarct, capsular abscess, cortical abscess, and capsulitis are caused by the coccus group. Lesions characteristic of both groups are found in a mixed infection.

Of all the pelvic tumors the rapidly growing tumor of pregnancy is the one most frequently associated with acute pyelonephritis. Occasionally acute pyelonephritis suddenly develops during the course of the growth of a fibroid uterus. Pyeloureteritis may also accompany or follow a post operative cystitis or an acute gonorrhoea or a septic catheterization. It may develop as early as the eighth week in pregnancy. However, it is encountered about the fifth month or later. Sometimes pyelonephritis is seen during the puerperium, and then it may be mistaken for some

form of septic infection. More often we find the right kidney involved than the left.

In its manifestation chronic pyelonephritis is less virulent than the acute form of the disease. It arises from a gradually induced stasis of urine accompanied by an infection. The colon bacillus is usually the source of this infection, but less often the gonococcus and tubercle bacillus may be the cause. Again the kidney may be the source of the infection, or it may come from the bladder, from the surrounding parts or by way of the blood stream. The source of the obstruction may arise from a prolapsed uterus and bladder, or from a slowly growing tumor that is compressing or constricting the ureter, or from a calculus in the ureter, or from a contraction or stricture of the ureter as a result of operative trauma.

Symptoms.—Although symptoms like painful and frequent urination often precede the onset, acute pyelonephritis is quite frequently ushered in with chill, pain traversing the course of ureter, and along the back attended with fever. Usually there are present pain on urination, vesical tenesmus, and a diminution of output of urine. Often we have a temperature of 104 to 105 F. and usually a prolonged and exhausting chill precedes this rise of temperature. There is a markedly tender kidney on the affected side, and enlargement may be very perceptible. The presence of large numbers of epithelial cells, pus cells and albumin is found on urinalysis. Sometimes one can palpate the ureter through the vagina as a tender and enlarged cord.

After the lapse of several hours or days there may be quite a reduction of the subjective symptoms, and the temperature declines, the pain subsides, the urine is passed in larger amounts, and it shows an increase of pus and albumin. The condition of the patient may appear to be improving from twenty-four to seventy-two hours when the symptoms may all of a sudden reappear.

At different intervals and with varying intensity the attacks follow one another. Prostration may not be very pronounced in the milder cases, but in the severer ones there is emaciation of the patient, and a hectic appearance in the face. At first usually only the right kidney is involved, but within a few days or a week we may begin to notice pain along the opposite

ureter and evidence of the spreading of the infection in that direction.

The disproportionate increase of albumin as compared with the number of leukocytes in the urine is proof sufficient of kidney involvement. An extension of the inflammatory process to the structure of the kidney is shown by the presence of hyaline and granular casts in the urine.

Cystoscopy reveals an inflamed trigone and congestion or often edema of the ureteral meati. Cystoscopy if performed within the hour of onset may reveal nothing abnormal unless hematuria initiates the disease, when bloody urine may be seen to swirl from the ureters. In suspected cases the ureters should be catheterized and specimens obtained in sterile test tubes for culture. In the acute pyelonephritis of pregnancy and in acute phlebitis or cellulitis following labor or abortion the temperature is intermittent or remittent in type from the beginning and is accompanied by chills.

PROGNOSIS

Acute pyelonephritis may quickly yield to treatment, or on the contrary it may be very stubborn and persistently resist all methods of treatment. Generally the prognosis is favorable and we get recovery in from two to eight weeks. A rapid disappearance of symptoms follows labor and the emptying of the uterus. Pyelonephritis constituting a form of puerperal sepsis may manifest itself during the puerperium. If acute pyelonephritis is due to the presence of pelvic tumors it is cured by the removal of these growths, which relieves the pressure on the ureters. In chronic pyelonephritis the prognosis is determined by the nature of the infection and the organic changes present, e. g., whether the infection is the result of the tubercle bacillus on the one hand or is caused by the colon bacillus on the other; or whether the obstruction can be overcome, or the extent of distension of the kidney pelvis, or the amount of dilatation of the ureter that is present.

In cases of long standing pyelonephritis and in those with recurring or permanent dilatation of the kidney pelvis and residual urine, the prognosis is far less favorable. Local treatment should be employed in such cases, even when no more than temporary improvement is to be expected, when more radical measures are not practicable. Geraghty states that formalde-

hyde solutions in strengths of 1-5000 to 1-2000 are more effectual than the silver preparations.

TREATMENT

Experience tells us that the treatment of acute pyelonephritis is postural, local, general and medicinal. As to the postural treatment, the patient should be placed in the Sim's position on the well side, and the elevation of the hips should be exaggerated with a hard pillow. The knee-chest position should be required several times during the twenty-four hours. Keep the bowels open. Milk, sweet or butter-milk, and vegetable soups may be taken. She should take water freely. The patient must be kept off of meat broths and solids. The urine should be rendered alkaline in the early stage by administering sodium citrate or sodium acetate 15 to 30 grains every two hours until the urine becomes alkaline to litmus, then every four hours. To obtain alkalization more quickly 15 to 30 grains of sodium bicarbonate is added to the dose of the citrate or acetate. All acute cases are changed to hexamethylenetetramine 10 to 15 grains and acid sodium phosphate every six hours as soon as there is a subsidence of acute symptoms. The reaction of the urine suddenly brought about retards the bacterial growth. Some patients do not tolerate hexamethylenetetramine, but manifest an immediate aggravation of symptoms and the appearance of blood in the urine due to renal irritation and muco-pus from the irritated bladder. The urine is uniformly cleared by a return to alkaline therapy. Some recommend acriflavine (neutral) in enteric coated tablets three times a day. Some patients do well with hexylresorcinol grains $4\frac{1}{2}$ to 9 four times a day after meals and at bed time followed by a glassful of milk. To produce a more continuous and free drainage in obstinate cases the catheter may be left in situ for one or more days. All chronic cases and the acute cases that are not relieved by treatment with medicines in a proper length of time should have the ureter of the affected side catheterized and the ureter and kidney pelvis irrigated with boric acid solution and sterile water, followed by the instillation of 5 c. c. of 1% silver nitrate every one to five days, or 1% mercurochrome, or argyrol 5% to 25% give better results in some cases. Kidd recommends the use of 5 c. c. of 20% neosilvol instilled into kidney pelvis. I can say from experience that this is a remedy one can rely on. Both

medical and lavage treatments are used until three successive kidney specimens are found free from pus and negative to culture. The cases are ambulant except during the acute exacerbation. In unresponsive and chronic cases all foci of infection and predisposing causes must be found out and removed. Calculus in the kidney pelvis or ureter, pelvic tumors and adnexal conditions must be removed to relieve the existing stasis. Kidney ptosis with kinking or torsion must be corrected by suspension. In some cases this latter condition has been and can be relieved by passing a good sized catheter up into the kidney pelvis. Dr. Guy L. Hunner insists upon thorough dilatation of the ureter at the obstructed point if that can be demonstrated. These cases have been successfully treated by continuous drainage with a permanent ureteral catheter for several days or weeks.

If, in spite of all efforts, the symptoms continue and even become more violent and there is almost constant pain, with increasing anemia, and if typhoid-like symptoms develop, one should not hesitate to induce labor. When acute pyelonephritis occurs as a complication of tumors of the pelvis it should be handled in the same manner as acute pyelonephritis of the pregnant state. After there is a subsidence of the acute symptoms, the patient should be operated, so that a repetition of the attacks may be avoided. If after proper rest in bed, and the use of irrigations and urinary antiseptics, the symptoms persist, these pelvic tumors should be operated at once, and nitrous-oxide-oxygen-ether being used for the anesthetic.

The nature and source of the obstruction and the form of infection determine the manner of treatment of chronic pyelonephritis. In tuberculous pyelonephritis it is needless to say that nephrectomy should be done as soon as the diagnosis is made, provided the other kidney is in sound condition. In other forms of chronic pyelonephritis the local treatment should have in mind the relief of urinary stasis in the ureter affected if this exists, the giving of antiseptic solutions, and even the injection of vaccines. The nature of the ureteral obstruction determines the methods employed to relieve the urinary stasis. If external pressure on the ureter causes the stasis, as is seen in pregnancy, postural treatment, as well as ureteral cath-

terization, may produce the desired results. We must remove tumors and inflammatory masses that press on the ureter. A ureteral stone should first be treated by injecting sterile oil into the ureter, or by dilating with ureteral catheter, or by leaving the catheter, one or more, in situ for one or more days, or if the stone is seen to produce a swelling or tumor in the vesical portion of the ureter it may be removed by fulguration with the diathermy electrode or with scissors.

When the obstruction is due to prolapse of the uterus and bladder we may obtain temporary relief by having the patient wear a pessary, or relief may be secured by operation. When obstruction is caused by infiltration of the broad ligament with carcinoma the condition is usually incurable. When obstruction of the ureter accompanies ptosis of the kidney and kinking of ureter it may be benefited by wearing a belt or pad, or by the suspension operation.

Stricture of the ureter or narrowing of the lumen may be relieved by the use of dilating catheters or by bougies. Indeed, together with antiseptics and diluents, this dilation seems to be all that is needed. In most cases, however, lavage of the kidney pelvis with boric acid solution or silver nitrate solution 1-1000, or colloidal silver 25% will be of great value in producing a cure. The largest ureteral catheter possible should be used when we lavage the kidney. This is used for two reasons: it more completely dilates the narrowed or obstructed ureter and it allows a more complete and efficient washing out of the pelvis of the kidney.

The direct method of cystoscopy and ureteral catheterization in these cases is to be preferred over the indirect method. A little time should be allowed for the kidney pelvis to drain out, after the catheter is inserted. We may then allow the irrigating solution to flow into the catheter by gravity, using a burette or a funnel. As a rule 75 c. c. of the irrigating solution is sufficient to use at one sitting. This treatment may be repeated every three to four days to one to two weeks, according to the effect obtained and the seriousness of the symptoms.

Usually no unfavorable reaction will result if the treatment is given with care and with asepsis. There may be some slight discomfort arise from this treatment, but it will subside in a few hours.

It is well to tell the patient that she *may* have considerable pain in that kidney and ureter for one to three hours, and in some instances the patient may experience very severe pain. But notify her before hand not to be alarmed, but that she may take a glass of hot water every 30 minutes for three times and may use a hot water bottle to the painful area and that there is no cause for alarm. This admonition is sometimes worthwhile. The patient should not be pronounced cured until several urinalyses show the absence of bacteria and pus cells from the urine.

So far as can be ascertained from the literature, the use of vaccines in chronic pyelonephritis has not been encouraging, nevertheless good results unquestionably are obtained in some cases. Vaccine may be employed alone or with other methods of treatment.

A culture should be secured at the time of the first ureteral catheterization, and a vaccine made from this culture, Auto-genous vaccines are to be preferred to stock vaccines. However, some claim better results from stock vaccines. From the initial, or immediately following the first ureteral catheterization a portion of this urine should be used to inoculate guinea pigs, in order to rule out tuberculosis.

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THE HEART IN SURGERY

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The heart in surgery should be of intense interest to the surgeon. In the mortality list following surgery, heart failure in one form or another is all too frequently given as the cause of death. To my knowledge of such cases, patients so dying have not been given a thorough preliminary examination before operation, hence I cannot see why this diagnosis should have been given.

It is a well established fact that the heart will stand up under surgery even in the presence of severe organic lesions minus block, plus good normal rhythm.

In the series of cases to establish this fact as conducted by Dr. Sprague at the Massachusetts General Hospital many cases even in advanced decompensation were operated successfully; let me quote from his findings: "170 cases were selected for study; there were 42 fatalities,

and of this, 22 were heart disease deaths." Understand these were advanced cardiac cases who required surgery. Further findings:

The ability of the patients to carry on the normal affairs of life will tell more about the heart than can be discovered by examination.

No type of heart disease is *per se* a contra indication to necessary surgery.

Medical treatment of a failing heart before operation will in many cases convert a poor surgical risk into a relatively good one. Obese or chronically septic cases are always poor risks.

The behavior of the respiration, pulse, and blood pressure, during and after operation is the best clinical guide to both internist and surgeon.

The skill of the anaesthetist is of the highest importance and greatly influences prognosis, plus the ability of the surgeon to work rapidly and cause as little traumatism as possible.

In light of the above facts why should a normal heart fail as the result of ordinary surgery, or at least why should a heart fail in which there has been no preliminary mention of organic disease placed upon the chart previous to operation, or again a case in which a good prognosis has been made to patient and friends and yet the cause of death given as myocardial failure.

Surely past history or present examination must reveal symptoms of such a condition should such symptoms have been sought for.

Now what is wrong? Is the surgeon negligent in history taking or does he content himself with a cursory cardiac examination. Of course it is understood I am not speaking of emergency surgery, although I know many so-called emergency cases are far from such, and the operation could be postponed while such examination be made as will safeguard the patient and probably influence the prognosis or at least show a patient's cardiac condition.

Let us speak of some of the conditions that place the patient in the danger zone:

Cardiac muscle failure or insufficiency with block or fibrillations. History should give indications of their presence and proper examination with the electrocardiograph, clinical examination and x-ray

with past history should bring to light the symptoms of myocardial insufficiency.

I cannot go at length into the diagnostic methods, as they are classical and known to you all, but stress the point that such examination should be made and properly recorded on the chart before operation.

In this day and age sclerosis and hypertension are rapidly increasing as evidenced by the ever increasing multitudes of sudden cardiac deaths. Both conditions enhanced by high living and rapid pace of life. And this brings us to blood pressure in surgery.

Moot's rule of blood pressure ratio, should be more widely used. If followed during operation one will get early warning of danger. Many elements have a marked effect on blood pressure according to Ruth & Taylor of Philadelphia, and McKesson, to-wit:

The diastolic pressure alone is of more value than the systolic alone.

The pressure ratio offers the earliest signs of danger.

25 per cent increase in pulse rate, plus 10 to 25 decrease in blood pressure puts the patient in the danger zone.

Many elements have a marked effect on blood pressure ratio during operation.

The emotional and mental condition of the patient.

The position of the patient on the table.

Lack of skilled anaesthetist, length of operation, and oftentimes unnecessary traumatism.

McKesson speaking of shock in anaesthesia states that a pulse rate of 100 and rising with progressively falling blood pressure reaching a systolic of 80 mm. or less, if shock continues for thirty minutes or more during operation, without effective remedial measures, death is almost inevitable in twenty-four to seventy-two hours. This guide discloses the onset of shock at least twenty minutes earlier than it is indicated in any other way.

No major operation should ever be performed without the blood pressure machine being attached and readings taken at all times, and more especially is this the case when the age of patient is above forty and the anaesthetist is not an expert. In no other way is it possible to

know when the patient passes from anaesthesia to shock.

Blood chemistry should be a routine measure in all patients above forty, at least that is in major surgery.

Let us review the subject of anginal attacks, manifested by acute epigastric pain.

I wonder if any statistics have been made as to the number of such cases operated for gall bladder or chronic appendicitis, I venture their number is legion. A major operation in the presence of such anginal attack is dangerous.

In such cases a painstaking clinical examination plus the electrocardiograph will minimize such mistakes, or at least bring to light the patient's true cardiac condition.

Time is altogether too short for a subject of this magnitude and in conclusion I would make a plea that the patients destined for surgery be given a more thorough cardiac examination and if any doubt exists that more time be taken and that all such findings be charted, for it is too bad when a patient will go to a surgeon for a simple appendectomy or other pelvic surgery, that no record be made on the chart of any past cardiac condition, then see such patient die in the course of three to four days and have such a death recorded as due to cardiac failure.

THE ROLE OF RESPIRATORY INFECTIONS IN DISTURBANCES OF THE HEART

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TULSA

The part that respiratory infections play in heart disease may yet remain controversial. When one recalls the universal distribution and high incidence of respiratory infections, and then makes a cursory mental survey of cardiac disturbances possibly attributable to such infections, one feels justified in concluding that the occurrence of heart disease either functional or structural during the course of these infections is of little significance to the busy general practitioner. However, bedside observers are familiar with occasional otherwise unexplained cardiac disturbances, occurring during the course of, and following acute respiratory infections. And these cardiovascular accidents

in rare instances will happen in what apparently are otherwise insipid affairs.

For a few years following the 1918 epidemic of influenza, emphasis was placed upon the cardiac phenomena observed during and immediately following the epidemic. There then followed a period of relative quiescence, due no doubt to the absence of an epidemic during this era. The 1928 epidemic was comparatively mild, both as to incidence and severity of the disease. This latter fact probably accounts for the paucity of recorded observations on the late epidemic. Nevertheless, this storm did not pass over without leaving an imprint upon the physical economy of the community.

The present paper purports to recall some of the recorded experiences of observers on the 1918 epidemic, to add a few notes concerning the effects of the 1928 scourge, and to emphasize the importance of careful handling of those respiratory infections occurring in cases of heart disease.

It is not pertinent to the present paper to consider such respiratory conditions as bronchitis and its various manifestations, viz., asthmatic bronchitis, bronchiectasis, pulmonary abscess, tuberculosis, or the pneumonias. It is felt that with the possible exception of the pneumonias, heart disturbance consequent to these conditions is of little import. This paper particularly concerns itself with "influenza" in its various grades of severity.

Since the epidemic of influenza in 1918 there has been a gradual disappearance of old terms such as "la Grippe" and "colds." Sufferers from these former ailments are now included under the term "flu." With this transition there has developed in the minds of both physicians and laymen a distorted conception of the true picture of influenza. Whether or not these milder upper respiratory infections are influenzal will not be considered.

As suggested by Hyman¹ the actual incidence of myocardial affection resulting from influenza is quite difficult to ascertain. Quoting statistics from Berlin, London, New York and Boston, he finds that the incidence varies between 4 and 7 per cent. Were it possible to get accurate figures, the incidence would no doubt be considerably higher than these figures would indicate.

Anatomically, any part of the heart may

be affected by influenza. Influenzal valvulitis, although rare, has been accurately described by Oppenheimer². There are no doubt other cases on record.

The myocardium may be, and frequently is, the site of predilection for the toxin. The marked and persistent convalescent asthenia with low systolic blood pressure, enlarged heart, tender liver, and cyanosis, in cases of influenza is evidence of a damaged myocardium, even though more classical symptoms or signs of myocardial failure may be absent. Structural changes in the myocardium as a rule are not demonstrable even in fatal cases. However, in the absence of hypertrophy, an enlarged cardiac area which is quite common is accounted for at postmortem by dilatation. Dilatation means a stretching of the muscle fibers beyond physiological limits, resulting in loss of tone and circulatory failure. This probably accounts for many fatalities.

Primary affection of the pericardium is not seen at the autopsy table. But the absence of acute pericardial lesions demonstrated at autopsy does not necessarily exclude involvement of the pericardium in sublethal cases. In this connection it is interesting to note that Musser and Herrmann³ in a review of 1720 consecutive necropsies performed at Charity Hospital in New Orleans, in a five year period from 1921 to 1925 found an incidence of 17.7% pericardial adhesions. It is worthy of note that this study was made on deaths occurring in the years immediately following the epidemic of 1918. Locke's⁴ figures for a similar study in Boston reported in 1916 were 12.6%. The high incidence of pericardial adhesions recorded at the autopsy table, and in many instances in cases who during life were not suspected of having such lesions, suggests strongly a possibility of undiagnosed pericardial disease in cases of influenza. Adhesions between the pericardium and pleura when so placed as to prevent freedom of mobility of the heart may result sooner or later in myocardial embarrassment.

The toxin of influenza not infrequently affects the conduction system. The effect is primarily that of depression rather than excitation. In the milder cases referred to as "simple" postinfluenzal bradycardia by Hyman⁵ the slow heart is likened to that which follows typhoid fever. As pointed out by Hyman, this is probably a result of changes in the sinus node rather

than a result of involvement of the extrinsic nerves of the heart, because other evidences of sympathetic imbalance in these cases are not demonstrable. Depending upon the severity of the toxin various grades of conduction disturbances may be found. There is no relationship between generalized toxic effects and conduction defects,—that is to say, a severe grade of arrhythmia being quite possible in an otherwise mild infection. In the more severe affections varying degrees of sinoauricular block, auriculoventricular block, and even complete dissociation of auricular and ventricular rhythm may be encountered. During the late 1928 epidemic of influenza I had occasion to observe two or three cases of bradycardia during the height of the disease when the patient was febrile. Unfortunately, electrocardiographic studies were not available. From a review of Hyman's record⁴ it would seem that as a rule the severer grades of conduction disturbances are encountered in those individuals past middle life, and it would be expected that the irregularity would be more likely to persist in this group than in younger individuals.

Still another cardiac manifestation of influenza is angina pectoris although scarcely mentioned in the literature. The incidence of this syndrome following influenza is sufficient to warrant close study. Two per cent of the cases of influenza studied by the Committee of the Witkin Foundation⁵ developed anginal symptoms. It has been pointed out that the age incidence of postinfluenzal angina is lower than from other causes. Hyman's records show that quite frequently angina occurs in those individuals who have previously had no symptoms of heart disease. The severity of the angina is indicated by a mortality in his small series of 33 1-3%.

The question naturally arises as to the possible outcome of these influenzal conditions. A resurvey of eight cases of postinfluenzal heart disease made by Hamburger and Priest⁶ would indicate that the majority have a favorable outlook. Of the eight cases which were rechecked after three years, five had completely recovered, two were not traceable, and one was unimproved. While this is a small group, they confirm the observations of White, Romberg and others referred to by Hamburger. From a comparison of the reports by Hamburger et al, and Hyman one might

summarize in a general way with the statement that the prognosis depends upon three factors, namely: (1) Age, (2) the anatomic and functional integrity of the myocardium upon which the infection has been superimposed. (3) the amount of permanent structural damage done by the toxin in a given case.

The following cases will serve to illustrate some of the points brought out in the above discussion, and to emphasize the importance of the occurrence of respiratory infections in the cardiac cripple:

CASE REPORTS

Case No. 52, a male, farmer, age 25, presented himself for examination on August 24, 1929, with a complaint of "pain in the heart." First symptoms began nine years ago following an attack of "flu" of one week's duration. At that time he developed a pain in the region of the heart which lasted for six or eight months. This gradually disappeared. He was told at the time that he had a "murmur." In January, 1929, there was a recurrence of the pain, which in every respect simulated the former pain. The only other complaint was epistaxis. He is of menial habits and smokes eight to ten cigarettes per day, and denies the use of stimulants. The family history is negative for circulatory diseases.

Physical Examination revealed a normal temperature, a pulse rate of 100, blood pressure of 140/76 in a sthenic individual with a panniculus subcutis measuring $1\frac{1}{2}$ to $1\frac{1}{2}$ cm. Reflexes were hyperactive. The tonsils were cryptic. The apex beat was neither visible nor palpable. Sinus arrhythmia with an occasional extrasystole was noted. The heart sounds were somewhat distant and there was a sticky first sound at the apex. The carotid reflex was markedly positive. Shifting of cardiac dullness with position could not be demonstrated.

X-Ray Examination of the chest revealed an obliteration of the left costophrenic angle with an apparent fixation of the apex. There was distinct left sided heart enlargement.

The Electrocardiogram showed the presence of right ventricular ectopics, prominent P2, a depression of S-T2, and negative T3.

In spite of the fact that fixation of the electrical axis in this case could not be demonstrated, the case was diagnosed in-

fluenzal adhesive pericardio-pleuritis with consequent cardiac hypertrophy.

Comment: The occurrence of a "murmur" with the former attack is worthy of note. Quite often in the course of a physical examination the physician observes rather definite alteration in one or other of the cardiac sounds that cannot be classified as true murmurs. These are usually recorded as murmurs, but may in many instances be external manifestations of pericardial changes. It is now well known that pericardial adhesions, when existing over a period of time, can cause cardiac hypertrophy. The left sided heart enlargement in this case may be accounted for on such a basis.

Case No. 89, is that of a male, age 52, whose former occupation was clerical, but now dairying. He presented himself for examination on December 24, 1929, with a complaint of irregular heart. The cardiac history dates back to 1916 when, while undergoing an insurance examination, he was told that his heart was slightly irregular. There were no symptoms at this time. He was examined again in 1922 when he was told that the heart was fluttering. The circulatory symptoms began about January, 1929, when, following a mild attack of "flu," he noticed a thumping in the left side of the chest synchronous with the heart beat. Shortly after this he was told by his physician that he had a bad heart. In March, 1929, he began to notice that he fatigued easily. He is now annoyed by an oppressive feeling over the heart after eating a heavy meal. Dizziness is also complained of. Other symptoms are denied. The habits are regular.

Past History: Pertussis and chicken-pox during childhood; polyarthrititis in 1921 which was relieved by the extraction of several teeth; a neurofibroma was removed from the arm in 1921. He suffered a generalized run-down feeling with loss of weight five years ago which was relieved by a tonsillectomy. He denies venereal diseases. He has been married twenty-one years and there are no children. The wife had two miscarriages soon after marriage. The patient states that a pelvic condition in the wife prevented their having children.

Family History: The father died at 65 of heart trouble; the mother died at 72 of liver trouble with jaundice. The remainder of the family history is irrelevant.

Physical Examination: The physical examination revealed a tall hyposthenic individual with a panniculus measuring from $\frac{1}{2}$ to $\frac{3}{4}$ cm. and of firm musculature. Blood pressure was 150-130/80 and the pulse rate was 61 and totally irregular. There was moderate arteriosclerosis of the fundal arteries and the peripheral arteries. The auscultatory rate of the heart was 100 with a pulse deficit of 39. The apical sounds were ringing and valvular in quality. The aortic second sound was accentuated. A systolic apical murmur transmitted toward the aortic region was elicited. There were no thrills.

Electrocardiographic Studies revealed an auricular fibrillation with a rate of 120 and frequent ventricular ectopics. The T. waves were variable as to direction and amplitude in all leads.

Comment: This case is worthy of note. From his story it is evident that he has had an arrhythmia for several years. However, compensation had apparently been well maintained until an otherwise insignificant mild respiratory infection occurred which reduced the cardiac reserve to the extent that a beginning failure resulted.

Another case is worthy of note in order that too much emphasis cannot be placed on the effect of so-called "flu" on an already damaged myocardium.

Case No. 20, male, age 60, was admitted to the hospital on April 14, 1929, complaining of shortness of breath and weakness. His story is that he had a mild attack of "flu" in December, 1928. He states that he has never felt quite right since that time. However, he has been able to carry on his daily activities until ten days prior to admission when he began to notice a progressive shortness of breath on exertion, that was accompanied by a generalized body weakness, some slight restlessness, and a slight pitting edema of the pretibial regions. It was further noticed that there was considerable gas on the stomach and the patient would attribute all the symptoms to this latter discomfort. Anorexia has been present since the onset of the present illness. He denies the occurrence of heart pains. There has been some blurring of vision since the attack of "flu." A slight cough is also complained of, beginning at the time of the present illness. Diminished frequency and quantity of urine has been noticed during the past few days. Bilateral frontal morning headache has been pres-

ent for several years. He denies the use of alcoholics, stimulants, or drugs.

Physical Examination revealed a man of apparent age 65, who was suffering from marked air hunger. There was a pasty pallor of the skin, and cyanosis of the lips, fingertips and the toes. A slight pitting edema was noticed in the pretibial regions. Examination of the fundi oculi revealed a marked sclerosis of the fundal arteries and a slight blurring of the discs. The lungs showed signs of edema at both bases anteriorly and posteriorly. The heart extended to the nipple line on the left side in the sixth interspace and to the parasternal line in the fourth interspace on the right side. There was increased manubrial dullness. The peripheral arteries were markedly thickened. The heart sounds were over active and there was marked accentuation with a metallic note of the aortic second sound. The heart rate was 120; the blood pressure 234/130. The peripheral arteries were thickened and tortuous, and the pulse assumed the character of a Corrigan. The liver was felt about two fingers breadth below the costal margin. The right lobe of the prostate was somewhat enlarged and hard.

The red blood cells numbered 3,860,000; hemoglobin 72%; the blood N. P. N. was 50.81 mm per 100 cc of blood. Specific gravity of the urine varied between 1.010 and 1.017; albumin was present on all of three examinations; hyaline and granular casts were found.

Diagnosis: Arteriosclerotic myocardial disease with hypertension and congestive failure no. 3; vascular nephritis.

Progress: The patient remained in the hospital about two weeks. The blood pressure remained at a high level, varying from 232/126 to 200/114. He left the hospital somewhat improved as evidenced by a clearing of paroxysmal attacks of dyspnea and a decided diminution in the edema.

Comment: A patient with known cardiovascular disease who develops an upper respiratory infection, however mild, should be kept abed much longer than those who are not the victims of such disease. There is no means of estimating the extent of damage done to the myocardium, and the severity of the attack of influenza is not a criterion of myocardial damage. It is well therefore to insist upon a prolonged period of physical inactivity in

that patient who is known to have had cardiovascular disease prior to the attack of "flu."

Heart disease may exist for many years and not cause the patient any distress. This is true of certain of the valvular lesions, more particularly the mitral valves. The mitral valves may be damaged during childhood in the course of an attack of inflammatory rheumatism, and an anatomical alteration will be demonstrable at any subsequent examination of the patient throughout life. These patients, however, will carry on their daily activities without any distress so long as the myocardium remains intact. While it is quite true that the continued strain of valvular insufficiency gradually breaks down the myocardial reserve, the actual break is frequently initiated by an otherwise harmless mild upper respiratory infection that the patient will term an attack of "flu."

The following case serves to illustrate this point.

Case No. 87, male, age 40, had an attack of acute inflammatory rheumatism at the age of 13, followed by milder attacks at 14 and 15. At the end of his college career he was told by a physician that he had heart disease. Since that time he has lived in various parts of this country, at high and low altitudes, and in South America following his profession of geologist, and he has suffered no particular distress. He frankly denies any symptoms that would suggest congestive or anginal failure prior to the present illness. He would date the present illness back to December, 1928, when he had a mild attack of "flu." This attack was of little significance to the patient and the services of a physician were not obtained. Since the attack of "flu" he has complained of a feeling of lassitude and gastric distress. He would term his general feelings as below par. During the second week in April, 1929, he noticed periods of skipped heart beats, and he states that he has been conscious of the heart beats, noticed more particularly after retiring and when lying on the right side. During this period he has also had momentary knife-like pains in the precordial region; slight shortness of breath on exertion is also complained of. He has been accustomed in the past to playing 18 holes of golf in an afternoon. Diagnosis at the time of the examination was rheumatic mitral insufficiency with congestive failure No. 1 and mild anginal failure. An electrocardiogram taken at

the time was not remarkable except for an occasional supraventricular ectopic complex and a negative T3. The patient has been under fairly constant observation since his first visit and the general progress has been downward. In November, six months from the time of the first examination and eleven months from the time of the attack of "flu," he developed auricular fibrillation which was diagnosed electrocardiographically. Since that time a considerable part of the time has been spent in bed and there has been a gradual narrowing of the physical sphere of this patient.

Comment: This patient has reached the age limit for this type of lesion. Nevertheless, since he has been extremely co-operative with all physicians who have attended him at various times, even though he did not have a physician during his mild attack of "flu," a word of advice in the matter of prolonged rest in this type of condition might have been a means of prolonging life. In such cases every effort should be exerted toward the maintenance of integrity of the myocardium.

Case No. 57, a housewife, age 34, was first seen July 30, 1929, complaining of "heart pain." She states that since an attack of "flu" in December, 1928, she has never felt the same. In addition to such general symptoms as lassitude, fatigability, gastric discomfort, she has had two phases relative to the circulatory system. The first phase immediately followed the "flu," extended over a period of three months, and was marked by several attacks of syncope, shortness of breath on exertion, a fullness in the precordial region, numbness in the left arm, and transient slight edema of the lower extremities. Following this period there have been attacks of heart pain occurring at irregular intervals, associated with exertion and excitement, and marked by a severe cutting pain in the apical region of the heart which seems to radiate to the posterior chest on the left side. This pain is of momentary duration, but is followed by numbness in the left arm which lasts for several hours. During one of these attacks her family physician administered amyl nitrite which aggravated the symptoms. She was told by her physician that there was an irregularity of the pulse during one of the attacks.

She further complains of a constant tight feeling in the precordium that is aggravated by exercise and excitement. She

sleeps on three pillows and cannot lie on the left side. The past history includes an operation for goiter, growing pains during childhood, typhoid fever at 15, and "uremic poisoning" prior to delivery of a normal infant eleven years ago.

Physical Examination revealed a hyposthenic individual 5 feet in height, weighing 137 pounds, with a pulse rate of 84; blood pressure of 120/86. The heart on percussion extended 10 cm to the left and 4 cm to the right. Supracardiac dullness measured 8 cm. The heart was rhythmical, the sounds were distant, the first being inaudible at the base. Aortic second sound was accentuated.

X-Ray examination showed a slight widening of the aortic shadow.

Electrocardiogram was normal.

A diagnosis of postinfluenzal angina with possible early coronary sclerosis was made. The diagnosis was strengthened when the patient's symptoms were relieved following the administration of theophyllin-ethylenediamine.

Comment: The occurrence of angina in an individual of this age is worthy of note. The past history suggests previous damage of the heart. However, the angina together with other symptoms of myocardial weakness, is new and was apparently initiated by the attack of influenza.

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THE TREATMENT OF CELIAC DISEASE FROM THE STANDPOINT OF VITAMIN DEFICIENCY*

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The description of Celiac disease is just the same now as that given by Gee in 1888. The literature of today does not enlighten us as to the true cause any more

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than early writers on the subject. Gee compared it with endemic diarrhea alba of India.

Celiac disease may be confused with two or three other conditions presenting abdominal enlargement; that is, if you have never seen a case. Quite often the child starts vomiting after being fed—projectile in character, suggestive of pyloric spasm or stenosis. As these conditions develop in the first few weeks of life, and Celiac disease in late infancy and early childhood, pyloric spasm and stenosis can be excluded very easily. Hirschsprung's disease may be confused with Celiac disease, but this condition is congenital and the child has suffered with constipation from birth: the colon is dilated and the abdominal distention is enormous. Tubercular peritonitis is associated with severe abdominal pain. The abdominal enlargement is gradual; there is wasting, pallor and weakness.

The Celiac child is one who has been a difficult feeder, on the bottle. The condition never develops with a breast-fed child; if so, it is several months after the child has been weaned. The majority of cases occur at fifteen months, or as they approach their second year. It may occur as early as six months and as late as from three to five years. The symptoms and appearance of the Celiac child are quite characteristic, and with a careful history and examination, one is not liable to confuse it with any other condition of early childhood presenting abdominal distention.

The child is brought to the doctor, due to the character of the stools, which are loose—not formed, not watery, but bulky, pale in color—looking very much like oatmeal porridge or gruel, losing weight, protruding abdomen. These are the clinical symptoms when we first see the child.

In reviewing the present-day literature on the subject, the symptomatology, regardless of text or writer, is about the same. Some may go a little more in detail in the laboratory findings; but, on the whole, the clinical description and findings are the same as those given by Gee in 1888.

Regardless of the etiology, there seems to be an inability of the Celiac child to digest fat, sugar and starch, and for this reason, some of the investigators have attributed the cause to a deficiency of

bile entering the intestine, pancreatic deficiency, overfeeding with fat, sugar and starch, functional disturbance of the nervous supply of the abdominal viscera, causing a disturbance of digestion and the absorption of toxic products.

Sauer states that the disease has never been produced experimentally, and cites a case of a child developing the condition on visiting a cousin who had the disease, which leads to the hypothesis that it might be transmitted from one child to another. This I believe to be quite impossible, as there is no other case on record. Perhaps these children's environment and diet being the same, it might be considered as a coincidence.

Post-mortem evidence has been of little assistance in placing the cause except to demonstrate the absence of any organic disease. To me, Celiac disease may be classified as one of the nutritional disturbances brought about by deficiency of the vitamins. This is shown by the retardation of growth and development. While there is no true rickets present, there is delayed formation of the centers of ossification of the epiphyses of the bones. The teeth are subject to early caries, the muscles are atrophic and weak and the child is very irritable, showing a nervous manifestation. There is a marked degree of anemia. While the disease is active, the child ceases to grow, is frail, stunted; these are symptoms of vitamin deficiency and to me, are more plausible for the cause of Celiac disease, than any yet given.

Vitamins are chemical substances of vital importance for the maintenance of the health of the body and are derived from the vegetable kingdom. Clinical experience shows that many pale, tired-looking children with unhealthy skins, whose appetites have been bad, improved rapidly after placing them on diets containing sufficient vitamins. R. McCarrison, London, in his experimental work, has proven quite conclusively that vitamins constitute one of the few essential agents for keeping the body alive and by their lack in proper balance, there is loss of appetite, indigestion, diarrhea alternating with constipation, inflammation of the colon, loss of weight, general weakness and lack of vigor, headache, tendency to edema and unhealthy skin, subnormal temperature and cardio-vascular depression.

The retardation of growth may be explained by the inability of the child to di-

gest whole sweet milk, which supplies the fat soluble Vitamin A. The diet lacking this can produce a wide range of physical disorders—children are undersized, retarded in development, more susceptible to bacterial invasions leading to bronchitis, pneumonia and even tuberculosis. Cod liver oil furnishes Vitamin A in a large amount, but the majority of these children cannot take cod liver oil due to its causing a digestive disturbance. Vitamin A is found most abundantly in that which the child cannot tolerate—butter and cream—and to me this is the outstanding cause of retardation of growth and arrested development in Celiac disease.

With a deficiency of Vitamin B, there is anorexia, lowered vitality, fretfulness, restlessness, pallor, low hemoglobin, and growth retardation. Presence of Vitamin B improves the appetite and enables the child to assimilate food to a greater advantage.

Water-soluble Vitamin C is contained in fresh fruit, green vegetables and tomatoes. A deficiency of this vitamin results in the development of scurvy. Still of London reports several of his cases having had scurvy preceding the symptoms and development of Celiac disease, which precludes the probability of Celiac disease being a condition of vitamin deficiency.

Vitamin D, the antiricketic vitamin is found in milk, butter, eggs, animal fat, vegetables, cod liver oil and irradiated ergosterol, which is perhaps the richest source of this vitamin. Vitamin D represents a force and power in the building-up process of the body, and delayed growth of bone indicates what has been proved a doubt—the connection of this vitamin with calcium and phosphorus metabolism and the prevention and cure of rickets.

In the treatment of Celiac disease, the textbook states that "We are dealing with a chronic affection and there is no tendency to a spontaneous recovery. Cow's milk is not only unsuited; it is the least suited. If the patient can be cured, it must be by diet; high proteins, low carbohydrates and fats."

Miller of London states that "Fresh cow's milk, cream, butter, meat, fat, must be omitted for many months. If exacerbation occurs they should be omitted for years. The course is always slow, whatever may be its end."

Sandor A. Levinsohn says, "Treatment unsatisfactory; no method is always good; try and experiment. Medication is of little value."

Sidney V. Hass divides the treatment into two parts: Keeping the gastro-intestinal tract free from toxic accumulation by castor oil weekly, and a colonic irrigation daily with sodium bicarbonate. Second, dietetic, plain milk should *not* be given. Protein milk, lactic acid milk, dry milk prepared with a fat-free milk may be given. Carbohydrates should be avoided, also fat. Protein may be used in all forms and apparently any quantity. Bananas may be used in any number—as high as sixteen a day.

Sauer states, "Up until 1923, results in treating Celiac disease were unsatisfactory. At that time, the late John Howland instituted protein milk. A tablespoonful of protein milk per pound body weight is given in twenty-four hours, gradually increasing until the child received the number of calories he should have for a normal child of the same age. Ringer's solution is used to add minerals. The mixture may be sweetened with vanilla or any other flavoring to encourage its palatability.

Julius Hess divides the treatment into three stages: First, protein milk alone; second, protein milk reinforced by almost pure protein food; third, that in which carbohydrates are added, is really a difficult one.

Kerley, of New York, in 1924 reported fifteen cases of Celiac disease to the American Pediatric Society, and in the April, 1930, "Archives of Pediatrics," six additional cases, treated by a mixture of water, 30 oz., casein, 2¼ oz., starch, 2¼ oz., sugar, 2¼ oz. This proved more satisfactory in his hands than protein milk in liquid or dry form. He states that he has no trouble in handling this diet and before these cases came under his care they had been tried on various milk preparations, including protein milk, and they were in an advanced condition of malnutrition. He states that if the abdomen still be enlarged after many months, this may be corrected by the application of Basler's abdominal support.

To carry out my theory that Celiac disease is a condition due to vitamin deficiency, it will be necessary for me to report a case, going into minute detail of the diet, where *all* the vitamins were early added to the treatment, including sweet

milk in evaporated form; carbohydrates in the form of Vitavose; whole lactic acid milk, with the object of adding fat; saur kraut juice to furnish acid in the form of lactic and acetic; minerals—calcium and phosphorus, and vitamins. Also, Spintrate, a powered spinach, one teaspoonful of which is equal to a well-rounded table-spoonful of the average cooked spinach.

Spintrate contains an excellent source of iron, calcium and phosphorus. It is a very rich source of Vitamin A, B and G. Information given by the manufacturers of Spintrate states that it is close to dried yeast in its content of Vitamin B and G, and by their tests, they find it about twice as rich as dried brewer's yeast in antineuritic value, and about equal to it in antipellagric value.

REPORT OF CASE

L. M., female child, 17 months. Family history, father and mother living, healthy, one sister, eight years old, healthy; normal birth, breast fed for four weeks, then modified cow's milk, and at six months put on undiluted cow's milk, unboiled, never was able to take cod liver oil, never cared for vegetables, but was very fond of mashed potatoes, and these she ate in large quantities. The mother said she was advised that the child could have all the potatoes she wanted, and at times would make a whole meal on potatoes alone.

When the child was fifteen months old, she weighed twenty-six pounds, and at this time started vomiting, losing weight, bowels somewhat loose, and the abdomen distended. The mother says she never had any fever, stomach becoming more enlarged, the only way to reduce it, by enemas. She had a great deal of gas, which the mother says she could hear, rolling. The appetite had been good, the child slept well and woke about once during the night.

Physical Examination: The child was very cross and irritable, greatly underweight and loss of turgor; ribs and scapula quite prominent; unable to walk, weight, 18 lbs., 3 oz., weight of a normal child eight months old, and she should have weighed 22 lbs., 12 oz. The forehead was very prominent and the hip circumference small. The abdomen measured 20 inches, chest 18½ inches, temperature, 99½ per rectum. Blood findings, hemoglobin, 44; w. b. c., 10,200; r. b. c., 3,200,000; urine, negative.

At seventeen months, the disease was

then of two months' duration. The child had been on lactic acid milk; Hess' modification of milk (Carnation milk, lemon juice, yolk of egg) was on this for about ten days and then changed to Kerley's treatment, which consists of casein, 2¼ oz., starch, 2¼ oz., sugar, 2¼ oz., and water, 30 oz. This mixture the child could not handle, and was continuing to lose weight.

I started on the first day's treatment, with: Water, 30 oz., lactic acid milk, 6 tbs., protein milk, 4 tbs., saccharine, 1 gr., to the mixture; total calories, 390. Of course, on this number of calories, I did not expect the child to gain, but was testing her out to see how she would respond to the treatment that I expected to institute.

On the following day, I added 2 tbs. of protein milk and 2 oz. saur kraut juice.

Three days later, I added protein milk, 8 tbs., lactic acid milk, 10 tbs., and kraut juice, 2 oz. and 6 bananas.

Four days later, the child was taking 15 tbs. protein milk and lactic acid milk, 8 tbs. with 1 tbs. Vitavose.

Eight days later, she was receiving 19 tbs. protein milk, 6 tbs. lactic acid milk, 2 tbs. Vitavose. At this time, Spintrate was included, and 3 oz. of kraut juice. The child at this time weighed 21 pounds, 6 ounces, a gain of 3 pounds, 3 ounces in eight days.

On the ninth day, skimmed milk was added, one pint, to make up the quart of fluid.

On the eleventh day, one quart of boiled cool skimmed milk replaced the water in the solution and protein milk, 22 tbs., lactic acid milk, 6 tbs., kraut juice, 4 oz., Spintrate, 6 tbs., and Vitavose, 3 tbs.

On the nineteenth day, the child's weight was 22 pounds, 4 ounces. Vegetables were added by cooking with boilable protein milk and skimmed milk; the bottle feeding was not changed. The diet remained the same and during the first three weeks, scraped beef, baked chicken, hard-boiled egg, bananas, and orange juice were added together with the milk mixture and the total calories amounted to 2235.

At about the sixth week, evaporated milk was added to the milk mixture in the following manner: Skimmed milk, 1 qt., evaporated milk, 12 oz., kraut juice, 5 oz.,

protein milk, 30 tbs., lactic acid milk, 15 tbs., and Vitavose, 10 tbs., Spintrate, 5 tsp. The diet has remained about the same, with exception of the addition of liver, baked sweet potato and shredded wheat biscuit.

During the period of treatment, the child has received no enemas, castor oil or any medication. At this time she is two years of age and has been under my supervision for eight months. Her height is 35½ inches, weight 29 pounds; normal height, 33 inches, weight 26 pounds. Weight for the four winter months (December to March) remained stationary due perhaps to her inability to take sun baths.

On this diet, the child has never had any remission of the symptoms, and has gained in every respect. Whole lactic acid milk was early added to the diet, with the thought that the protein milk would help to overcome action of the fat in the acid milk and the lactic acid neutralizes the buffer substance in cow's milk, making it more easily digested. Evaporated milk was also included early, as it occurred to me that the fat in this milk, due to its very fine globules, would be assimilated and digested as easily as mother's milk and in acid media, with lactic acid milk and kraut juice, would probably promote digestibility and at the same time would be adding Vitamins A, B and D. These vitamins are not destroyed in the preparation of evaporated milk. As much as 24 oz. of the milk have been added to the 24-hour feeding mixture without any disturbance, as is reported experienced by authorities on the subject. Up to this time, fat was added very cautiously and it was said months or years were required before these cases could assimilate fat satisfactorily.

Sugar, one of the important food elements which the Celiac child has been unable to digest and had been advised to add very cautiously, was introduced into the diet in the form of Vitavose, with more than satisfactory results. It is a wheat-germ sugar and very rich in Vitamin B, containing the other mineral elements and soluble-nitrogenous compounds present in the wheat germ. As large an amount as 12 tbs. were added to the 24-hour mixture without any ill effect.

After the child had been on the diet outlined for eight months, I omitted pow-

dered protein milk and lactic acid milk from the formula. I continued with evaporated milk, Vitavase, Spintrate and kraut juice, to note the reaction, if any, and my instructions to the child's mother was for equal parts of evaporated milk and water in the formula.

A week later, the child was brought to the office and upon verifying the formula with the mother, I found that she had misunderstood me as to the amount of evaporated milk she was to use and that week had prepared the formula with two parts evaporated milk to one part water. The child had taken the mixture without any ill effect or remission of the condition on the addition of fat, as predicted in the textbooks. Inasmuch as the child relished and digested the mixture satisfactorily, I allowed her to remain on the 2:1 milk and water proportion (plus, of course, Vitavose, Spintrate and kraut juice) in addition to which she receives a meat, fruit and vegetable diet.

The large proportion of evaporated milk erroneously added to the milk formula determines that the fat in evaporated milk must be as easily digested and assimilated as mother's milk.

This case of Celiac disease improved more rapidly than any I have seen or found reported in literature; this I attribute to treating and feeding a child with this condition, as a vitamin deficiency.

CONCLUSION

1. Celiac disease is, in all probability, a vitamin deficiency.
2. Fat, in the form of evaporated milk, can be added early to a high protein mixture with an acid media.
3. Sugar can be added early in the form of grain-germ sugar.
4. Iron, calcium and phosphorus, also vitamins A, B and G may be added to the food mixture in the form of Spintrate.
5. Kraut juice may be used as an acidifier, also adding additional minerals and vitamins.

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PERFORATED GASTRIC AND DUODENAL ULCER

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In all the field of surgery there is probably no condition more dramatic in onset, more fulminating in its course or, if untreated, more tragic in outcome, than perforated gastric and duodenal ulcers.

The subject of peptic ulcer is one of intriguing interest and there is a constant changing of ideas and opinions by a great many of our most exhaustive workers in this field—on the part of the internist as well as the surgeon. This is particularly evidenced by the fact that Deaver, who, up until two years ago, routinely did gastro-jejunostomy following closure of the perforation, now practices only simple closure of the perforated duodenal ulcer unless the closure itself produces obstruction or stenosis of the lumen.

There can no longer be any doubt that all non-perforated ulcers should receive at least a trial medical treatment because it is a well known and well recognized fact that many peptic ulcers properly treated and properly managed will heal and remain healed.

We frequently see patients who have had definite signs and symptoms of peptic ulcer for years and these are the cases that are so difficult to manage and one of the most difficult points to determine is—when does it cease to be a medical problem and when does it become a definite surgical entity? This is a question which probably will never be satisfactorily decided.

However, there is one type of ulcer in

which there can be no doubt as to the necessity for immediate surgery. I refer to the perforated peptic ulcer which is always a definite surgical condition and deserving, as well as demanding, immediate and effective surgical relief if one is to succeed in averting a most certain fatality.

Moynihan classifies or describes perforations as acute, subacute and chronic. The acute type gives way suddenly and completely and usually presents a fairly large opening which allows the stomach and duodenal contents to escape easily and rapidly into the peritoneal cavity.

The subacute type is described as perforating almost as suddenly but may give prodromal symptoms of exaggerated pain for several days before perforation and the opening is usually somewhat smaller and may be instantly closed by a plug of omentum or in a few hours by fibrinous exudate allowing very little soiling of the abdomen by the gastro-duodenal contents. It is a well known fact that this type of perforation may sometimes permit recovery of the patient without resorting to surgery but this result is one that can never be foretold and the only cases diagnosed as perforated ulcers which should not receive surgical relief are those who refuse to give their permission for operation.

The chronic type is one which slowly eats its way through the coats and allows a protective peritonitis to develop and prevents the spilling of the gastric contents into the general peritoneal cavity. Perigastric abscess may form and since the chronic perforations are frequently on the posterior surface, the resulting abscess is usually subphrenic. It is fortunate, indeed, that the majority of the acute and subacute perforations occur on the anterior surfaces where they are usually easily accessible. It occasionally happens that the posterior perforations are so inaccessible that effective closure is physically impossible.

The Diagnosis of Perforated Ulcers is not usually of extreme difficulty as the great majority of them present a fairly consistent picture and, if one is careful to elicit an accurate history, approximately 90% give a history of previous indigestion or so called stomach trouble varying anywhere from a few weeks to ten or fifteen years. However, there are a few who claim they have never had any previous trouble. Henry P. Brown, in report-

ing a series of 100 perforations at the Pennsylvania and Presbyterian hospitals of Philadelphia, says that ten claimed they were free from all symptoms prior to perforation. The onset is extremely sudden and has been described as a sudden severe pain like the thrust of a dagger in the epigastrium.

This excruciating pain is located usually about half way between the Xyphoid process and umbilicus and from one to two centimeters to the right of the midline. There is occasionally a referred pain to the chest or shoulders, but most frequently to the left supra-clavicular fossa, but, when present, is usually so transitory that the patient makes no particular note of it. The pain is followed almost immediately by an involuntary rigidity of the abdominal muscles which, for the first hour, is more marked in the upper portion of the right rectus muscle but rapidly becomes generalized and is commonly referred to as board-like in its character and the patient resents the approach of the examining hand for fear of increasing the intensity of the pain.

The Breathing is short, shallow and costal in type and the patient keeps his legs flexed and the body is maintained in a rigidly fixed position, as any movement or manipulation causes increased pain and the patient may remain for hours without moving to any appreciable extent. Nausea and vomiting are present in most cases.

The Pulse Rate is an interesting feature in this condition and in many causes the loss of several valuable hours. Immediately following the rupture and for several hours the pulse rate may remain normal or even below normal due to stimulation of the vague nerve. The expression is terror struck and there is extreme prostration, in contrast to what is usually described as shock which is not present for several hours, as evidenced by the low pulse rate, normal blood pressure and normal temperature. For the first six hours the white cell count is of little value in the diagnosis but later shows a rapidly increasing leukocytosis.

Obliteration of Liver Dullness is a symptom which is occasionally present due to a layer of air over the liver. This is sometimes demonstrated by the fluoroscope, and, when present, is of considerable value in aiding to verify the diagnosis. Shifting dullness due to the presence of fluid in the abdominal cavity and rap-

idly increasing dullness in the right flank are additional symptoms of value in making an accurate diagnosis, especially in duodenal perforations.

While it is always a matter of great personal satisfaction and pride for our pre and post-operative diagnoses to check, it must be remembered that a human life is at stake and that too much time must not be lost in the effort to be absolutely correct in our diagnosis. It is quite sufficient to be able to decide that the lesion in question presents an acute surgical emergency.

The early symptoms are followed in a few hours by the beginning of peritonitis. By the second or third day there is true shock and the abdomen is distended and tympanitic, there is cyanosis, the pulse is thread-like and rapid, the extremities are cold and it is quite obvious that the usual result of non-operated cases is inevitable.

These symptoms, in addition to those of chronic ulcer, are usually sufficient to justify a diagnosis of perforated peptic ulcer. Briefly, these additional symptoms may be tabulated as follows: indigestion, epigastric pain or distress, occurring from two to four hours after meals and often about four or five o'clock in the morning and relieved by food and alkalies; seasonal recurrences of symptoms usually in the spring and fall and lasting from four to six weeks with comparative freedom from symptoms until the next attack, loss of weight, vomiting of blood or blood in stools, in addition to the x-ray findings and the analysis of the gastric contents in those cases which have previously been investigated. While it is quite true that in about 80% of perforated ulcers the diagnosis is comparatively easy, there are a number of lesions which may be easily confused with perforations. In Brown's series of 100 cases, acute appendicitis was diagnosed seven times, acute cholecystitis five times, intestinal obstruction in three, and acute pancreatitis in one. In 1901 Moynihan reported a series of 49 cases in which 18 were diagnosed as acute appendicitis.

These were all duodenal perforations and there is usually earlier involvement of the right side than in gastric perforations. This is due to the well defined course the escaping fluid takes as it invades the peritoneal cavity. It escapes onto the upper surface of the transverse Mesocolon to the right of the promontory

formed by the fitting of the transverse colon to the greater curvature of the stomach. This, quite naturally, causes the fluid to run to the right of the hepatic flexure and from there down the right side of the ascending colon to the right iliac fossa, where it may cause the exquisite pain and tenderness so characteristic of acute appendicitis. The fluid then fills the pelvic cavity, next the left iliac fossa and by gradual extension, the entire peritoneal cavity.

Other conditions which occasionally cause some difficulty in differentiation are ruptured ectopic pregnancy, cholelithiasis, acute cholecystitis, torsion of ovarian tumor, gastric crises of Tabes, and occasionally, the onset of the menstrual period. Ruptured ectopic pregnancy may simulate perforated ulcer but may usually be ruled out by obtaining a history of pregnancy and examination may reveal an enlarged uterus, soft cervix, and uterine bleeding. The pain is usually in the right or left lower quadrant and it should also be remembered that perforated ulcer is rare in women, the percentage being about 20%. There may be little or no rigidity.

Twisted ovarian tumor usually causes low abdominal pain and may be accompanied by very little rigidity. Bi-manual examination may reveal the presence of the tumor.

Intestinal obstruction as a rule does not cause a great deal of difficulty in differentiation except in the extremely early stage. The onset is not so sudden and the immediate prostration is not nearly so marked as in perforation. The nausea and vomiting are more marked, which with visible and audible hyperperistalsis followed later by fecal vomiting with distention of the abdomen are quite sufficient to eliminate a diagnosis of perforation.

In acute pancreatitis the pain and prostration are more marked than in perforated ulcer and may present bluish patches of cyanosis over the abdomen and limbs, a symptom which occurs only in acute pancreatitis. The rigidity is less marked and limited to the upper abdomen and the tenderness is more marked on the left side than on the right side. The pulse is usually quite rapid and thready from the onset.

The cholelithiasis attack is in marked contrast to perforation in which the body

is rigidly maintained in one position, while the victim of gall stone colic tosses about in an effort to obtain some relief by changing his position. The tenderness is located further to the right and the pain frequently radiates around the ribs to the right scapula, to the right shoulder or straight through to the back. There may be a history of previous jaundice.

Acute appendicitis differs from perforation in that the previous history is not suggestive of ulcer, the rigidity is not so intense and it usually occurs first over the right lower quadrant and may not develop for several hours, whereas, the rigidity of perforation is almost simultaneous with the occurrence of the perforation. The pain is not so excruciating, the respiration is not of the quick, jerky, shallow, costal type, and the relative tenderness is quite different in intensity and location.

It is quite obvious that *the treatment* is prompt and effective surgical relief consisting of some form of closure of the perforation which will produce the least amount of narrowing of the lumen of the duodenum or stomach. There is no stereotyped or standard procedure or technique which is effective in all cases and according to one's judgment, the technique may be modified according to the requirements of the case.

There are several factors of genuine importance to be considered which may influence one's choice of procedure. The most important is the length of time elapsing from the time of the perforation until the operation as the mortality rate increases in direct ratio to the number of hours which have elapsed until the patient is operated. Other factors are the location, size, character and amount of induration around the ulcer, the virulence of the escaping fluid, the surgical facilities, and the judgment, experience and skill of the operating team. Since the majority of these perforations are duodenal and since most of them are easily accessible, a simple closure is sufficient. If the ulcer is of the large, thick, battle scarred, callous type, then it is obvious that a gastro-enterostomy or some type of short-circuiting operation is necessary.

The majority of patients with perforated ulcers are in a condition of extremis and since the operation is essentially a life saving measure, it is quite natural to assume that the simplest and quickest method which will effectively close the perfora-

tion is the method of choice. In approximately 85% of cases this can be done by simply inserting a purse-string suture and invaginating the edges of the opening and then planting an omental graft over the repaired area. In most cases this simple procedure is quite sufficient. While the simple purse-string suture, especially in the soft type of ulcer, is one of the most effective means of rapid closure, there are a number of other methods which are equally as effective. Some men use a single interrupted suture going through all the coats of intestine or stomach, while others use a single mattress or several interrupted sutures covered by an omental graft. In duodenal perforation where there is considerable edema and infiltration and the sutures do not hold well, Moynihan describes a method of closure in which the gastro-hepatic omentum is drawn over the anterior surface of the duodenum and fixed at its lower border by a few sutures and the extreme right portion of the great omentum is then turned upward over the duodenum and fixed to form a second protective layer over the gastro-hepatic omentum. In difficult cases this may be followed by closing the pylorus and doing gastro-enterostomy.

There are cases in which closure of the ulcer produces a definite obstruction or stenosis of the duodenum and in these cases it is an absolute necessity to do some type of short-circuiting operation, which always adds considerable time to the operation, and, therefore, to some extent may increase the mortality. The chief controversy involves the question of doing routine gastro-enterostomy following closure of the perforation and there are many arguments for and against this procedure.

To quote from Olson and Cable, some of the arguments against gastro-enterostomy are:

1. It is unnecessary as the perforation nearly always cures the ulcer.
2. It adds to the mortality.
3. There is danger of spreading the infection.
4. It is not necessary in all cases.
5. Reperforation, hemorrhage and stenosis are very rare.
6. The danger of gastro-jejunal ulcer.

7. Brenner favors simple closure in the soft ulcer type and gastro-enterostomy in the caloused type.

And in favor of gastro-enterostomy are the following:

1. Perforation, with closure alone, does not cure the ulcer in a large number of cases.
2. In properly chosen cases gastro-enterostomy does not affect the mortality.
3. The danger of spreading infection is theoretical rather than practical.
4. Closure of perforation always narrows the lumen and gastro-enterostomy safeguards against secondary perforation and the effect of subsequent stenosis.
5. The occurrence of gastro-jejunal ulcer is extremely low.
6. Gastro-enterostomy relieves tension on the suture.
7. Co-existing ulcers are favorably influenced.

Immediately after the operation the patient may be given a retention enema consisting of about ten ounces of saline, which may be repeated every four hours or saline may be given continuously by the Murphy drip method. No fluids should be given by mouth for twelve hours or preferably twenty-four hours, unless gastro-enterostomy has been done in which case fluids may be given within four hours. Hypodermoclysis of saline may be given if needed and if the patient is in shock 200 cc of 10% glucose solution intravenously is especially effective. After the patient reacts from the anaesthetic he may be elevated to the Fowler position to drain the fluids away from the diaphragm. After twenty-four hours he may have more water or if desired a little tea and after forty-eight hours he may have fruit juices and the diet may be increased as rapidly as the patient is able to tolerate it. It must be remembered that the diet and medical care are most important from a post-operative standpoint and upon this care depends to a great extent the ultimate success of the operation and freedom from recurrence of symptoms.

The question of drainage is one of considerable interest and some controversy.

Moynihan rarely ever drains his cases if operated upon during the first twelve hours after perforation, while Deaver advocates drainage in practically all cases. It has been conclusively proved that the escaping fluid is sterile for the first six hours, and, if there is very little spilling of the fluid, it is rarely ever necessary to drain. The only case which I have closed without drainage developed a rather fulminating peritonitis, a paralytic ileus and the wound drained most freely for some several weeks which was eventually followed by recovery, but I am naturally very hesitant to close without drainage after such an experience.

In all cases the fluid should be removed either by suction or by hot moist saline sponges. Particular attention should be given to the upper abdomen beneath the diaphragm to avoid, if possible, the danger of subphrenic abscess or of a septic inflammation spreading through the diaphragm and causing an acute pleurisy or empyema.

Drainage, when used, should extend into the pelvis through a suprapubic stab wound. This may also be supplemented, if it seems necessary, by stab wound drains in the right and left iliac fossa and also through the incision.

I would like to very briefly report four fairly typical cases of perforated peptic ulcers, three of which were duodenal and one pyloric:

Mr. H. H., a white man, age 55, occupation farmer, was brought to the hospital, a distance of about 15 miles, in an ambulance. His chief complaint at time of admittance was severe pain in the right side of the abdomen, more marked in the right lower quadrant, but was preceded by a sudden severe epigastric pain followed by prostration. He gave a history of stomach trouble for the past five years which was worse in the spring. The pain came on when the stomach was empty and the taking of food was accompanied by relief of pain until two or three hours after meals. He had never taken any alkalies or other medicine nor had he ever been under any treatment. W.B.C. were 16,800; polys 85; S.L. 11; L.L. 4; urinalysis negative: blood pressure 125/70; temperature 99.8. Immediate operation was advised and the abdomen was opened twelve hours after the onset of the acute pain. There was a moderate amount of free fluid and gastric con-

tents in the free peritoneal cavity and examination quickly revealed a duodenal perforation on the anterior surface about two centimeters below the pyloric ring. It was easily accessible and was closed with a purse-string suture and by fixing an omental graft over the perforated area. All fluid was removed and the abdomen was closed with no drainage. The patient developed a virulent peritonitis and the wound drained pus freely for about three weeks, a paralytic ileus occurred about the fifth post-operative day and ten days after the operation he developed pneumonia. The patient eventually recovered and was dismissed sixty-three days after operation.

Mr. W. E. D., a white man, age 34, occupation farmer, was admitted to the hospital complaining of epigastric pain, nervousness and general weakness. He gave a history of stomach trouble which first occurred 18 years ago, but had no trouble for the past three years. The pain occurred suddenly after lifting a heavy weight. On examination the temperature was 99.2; pulse 80, and respiration 20. The abdomen was quite rigid and very tender on pressure over the epigastrium. The blood count revealed 15,000 W.B.C., with 81 polys, 17 small and two large lymphocytes. The urinalysis was negative. Operation revealed free fluid in the abdomen and there was a perforation about 6 millimeters in diameter on the anterior surface of the duodenum about 2 cm. below the pyloric ring. This was easily closed and reinforced with omentum and the abdomen drained. The patient made an uneventful recovery and left the hospital in good condition 19 days after the operation.

Mr. J. S., a white man, age 35, occupation freight handler, entered the hospital complaining of severe epigastric pain which was referred to the right side with a history of previous indigestion and upper abdominal pain occurring several hours after meals and relieved by food and alkalies. About three days before admission to hospital, his pain had been worse. Examination revealed rigid abdomen, tenderness on pressure, especially in epigastrium and over appendiceal region. W. B. C. were 15,600 with 79 polys, 16 small and 5 large lymphocytes. Urine showed trace of albumin and otherwise was negative. Operation was advised immediately and examination of the duode-

num in this case also revealed a perforation just below the pyloric ring on the anterior surface. Purse-string suture sufficed to close the opening and omental graft was fixed to duodenal wall over the perforation. The patient was dismissed in good condition in 13 days.

Mr. C. D., a white man, age 37, occupation plumber, was admitted to the hospital complaining of severe pain in epigastrium which came on suddenly with a history of previous trouble for ten years. The abdomen was typical in its rigidity, the respiration was short, shallow and costal in type, and the pain was quite severe. The blood count was 13,700 W.B.C., 78 polys, 19 small and 3 large lymphocytes. Operation revealed an anterior perforation about 1 centimeter proximal to the pyloric valve. The opening was easily closed with a purse-string suture and omental graft applied in the usual manner. This was followed by a very smooth and uneventful recovery and the patient was able to leave the hospital eleven days after operation.

With the exception of the last, which was quite recent, these cases have been seen at fairly regular intervals and all report that they have been relatively free from previous symptoms. However, they have been warned in regard to their diet and one case reports that it is necessary for him to take a little alkali at intervals but quite rarely as compared to the amount taken before perforation.

In closing I would like to say that this paper makes no claim for any original work and presents more or less of a resume of the experiences and opinions and judgment of various workers in the field. No tables of statistics have been presented due to the necessity of brevity. Suffice it to say that we should make a strenuous effort to make an early diagnosis and insist on immediate operation for the mortality increases in direct ratio to the number of hours elapsing from the time of perforation until operation. Almost all cases operated within six hours recover while about 75% operated as much as forty-eight hours after perforation fail to recover.

404 Osler Building.

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CALCIFICATION OF VESSELS IN DIABETES

Roentgenographic evidence of calcification of the vessels was present in the legs in 53 per cent of 324 diabetic patients varying in age from 2 to 81 years examined by L. B. Morrison and I. K. Bogan, Boston (Journal A. M. A., April 27, 1929). In the third decade 6 per cent of the patients showed vascular calcification, and in the seventh decade 87 per cent. Twenty-one per cent showed advanced calcification. Advanced calcification was not found under 40 years of age, although definite calcification was present in five cases. No case of gangrene was found under 40 years of age. Syphilis, dental infections and arthritis appear to play no part in the production of vascular calcification in this series. Seventeen per cent of patients without calcification (average age, 41 years) and 49 per cent of patients with calcification (average age 59 years) have blood pressures over 150. Patients over 50 with sclerosis are about twice as apt to have high blood pressure as those without calcification. Six, or 9 per cent of the patients with diabetes of ten years' duration, did not show calcification. Morrison and Bogan conclude from these observations that the incidence of vascular calcification increases with age and with the duration of the disease, and is higher in diabetic than in nondiabetic patients. The degree of the calcification increases as a rule with age and duration. The blood pressure in this series of diabetic patients increased with age but not with duration. Roentgen examination is an accurate method of judging the presence of calcium in the vessel walls. It is more reliable than clinical methods in the diagnosis of vascular calcification. Rentgenograms of the extremities would be helpful to insurance physicians. Diabetes mellitus is an etiologic factor in the production of vascular calcification.

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

THE NEW SCHOOL CHILD

Perhaps the matter applies to all school children, rather than those just entering school, but it certainly is of interest to everyone to protect, at least, the interest of the child just entering school, who in a few weeks will be thrown in contact with many and diverse infections and conditions.

The Journal has always intended it to be a part of its civic duty at this particular time of year to remind physicians, especially the family physician, who has the confidence of the parents and of the child-

ren, that much may be done to protect the child in many ways. It goes without saying that every child can be and should be, largely if not wholly, protected from certain infections by the intelligent use of the various prophylactics and preventative medicines. Toxin anti-toxin, occupies a successful niche in the prevention of diphtheria, and the Schick test is so simple in the hands of the qualified that failure in its use is hardly excusable. Small pox vaccine is so well known to both physician and laymen that it would not seem necessary to mention that phase of the matter, yet there are no doubt thousands of school children, today, not vaccinated.

Theoretically, the low water level in Oklahoma as well as in many other states, should be followed by high concentration of solids and with that a high concentration of any infectious matter which the waters may contain. Hundreds of country schools in the State have very poor water supplies, as a rule simply bored wells, subject to any and all types of infections. Health officers and physicians have a large influence in combating these dangers; anti-typhoid vaccine is so simple, so harmless that its lack of use is also inexcusable.

Hundreds of the new children entering schools will be found to have various dental and nasopharyngeal infections and defects, probably the leader of them all is the infected tonsil, accompanied by the usual adenoids, after which it is a race as to whether dental or other throat and ear conditions cause the most trouble. Very good physicians are prone to overlook infections of the ear which may tend to illness of any degree of severity and sometimes end in fatalities.

It should be the pleasurable and the duty of every physician as a professional man and as a citizen to point out in his most discriminating and effective manner the great worth and absolute need of the various boons of preventative medicine to his clientele.

"ROGUES' GALLERY"*

According to reports it required more than six months to catalogue the "Rogues' Gallery." The New York City department of health index includes the names, aliases and records of over 25,000 medical quacks, "cure all" manufacturers, nostrum peddlers, diet inventors and all others who

prey on the ill and guillible well. This massive work was compiled by the National Better Business Bureau at the request of the Department of Health.

It is said that the thousands of folders disclose the life history and careers of abortionists, medical quacks, charlatans; manufacturers of questionable medicine, worthless hair growers, and other tonics; peddlers of "Indian herb" concoctions; harmful cosmetics; including rouges, powders, creams, washes, toilet waters, lipsticks, etc.; manufacturers and peddlers of "horse collars" and other useless electric devices; "inventors" and peddlers of worthless diets, exercise and reducing systems; and a complete list of the manufacturers and analysis of tonics, patent medicines and other medical articles offered for sale in drugstores and other shops, which do not have the approval of the American Medical Association.

It is said that the efforts of Commissioner Shirley W. Wynne to rid the radio broadcasting field of medical quacks and other charlatans really marked the beginning of the work, for at that time he advocated the compilation of an "Indexus Expurgatorius" to be used as a guide by owners of broadcasting stations.

All of this is well and commendable but only applies to New York City. However, it is significant and commendable that the Middle West, through the efforts of the Kansas City Star, the American Medical Association, the Kansas State Board of Medical Examiners, and others are waging a bitter fight to exclude from broadcasting some of the most notorious charlatans and quacks ever allowed existence under the broadfolds of our Constitution. It is more than irritating to note that despite the arrogant quackery and cruel frauds imposed by the Kansas Broadcasters, the efforts to dislodge them are met on every hand by various obstructions, legal objection and injunction.

It is certainly the duty of the physician, for no one else is able to do so, to put such imposters out of business; but the months, and sometimes years, pile up in the attempt to perform such services, rendering the work disheartening indeed.

*The New England Journal of Medicine. Volume 203, page 286. Aug. 7, 1930.

Editorial Notes—Personal and General

DR. HUGH JETER, Oklahoma City, announces the removal of his offices to 218 Osler Building.

DR. W. S. IVY, Duncan, has returned from Denver, Colorado, where he took a special course in medicine and surgery.

DR. ALFRED R. SUGG, Ada, announces the removal of his office to 106 East 13th Street. Practice limited to Urology and Gynecology.

DR. JACKSON BROSHEARS, Lawton, is reported seriously ill, suffering from a respiratory disease resulting from a relapse of summer influenza.

DR. D. H. O'DONOGHUE, Oklahoma City, announces the opening of his office for practice limited to Orthopedic Surgery and Fractures, 912 Merical Arts Building.

JEFFERSON COUNTY MEDICAL SOCIETY met July 7, guests of the Waurika physicians. After dinner the following program was given: Uterine Atresia and Report of a Case, Dr. J. I. Hollingsworth; Rational Treatment of Abortion, Dr. W. M. Browning; Use of Digitalis and Strophanthus in Heart Affection, Dr. C. M. Maupin. October 1st will be the date of the next meeting.

CORRECTION—"Chemical Hysterectomy." In our last issue attention was called to the work of "Smith of New Orleans" on the above matter. This was an error, the pioneer New Orleans authority in the application of zinc chloride for the eradication of certain types of malignancy and other growths of the cervix and uterus was Dr. Ernest S. Lewis, Emeritus Professor of Obstetrics and Gynecology, Tulane University School of Medicine.

AMERICAN SOCIETY FOR STUDY OF GOITER

At the recent meeting of the American Association for the Study of Goiter at Seattle, Washington, Doctor William F. Rienhoff, Jr., of Johns Hopkins University, Baltimore, Maryland, received the annual award of \$300 for the best essay dealing with the goiter problem. Doctors O. P. Kimball, of Cleveland, Ohio, and E. P. and D. R. McCullagh, Cleveland Clinic Foundation, Cleveland, Ohio, and Robert P. Ball, of the University of Louisville, received honorable mention.

CANCER CLINIC AT BALTIMORE, MD.

To My Colleagues, the Editors of the Medical Journals of the United States and Canada:

There will be a meeting in the ballroom of Belvedere Hotel in Baltimore, Maryland, Monday, Tuesday and Wednesday, September 15, 16, and 17, 1930, beginning Monday morning at ten o'clock and ending Wednesday evening at nine o'clock, daylight saving time. During these days there will be lantern-slide demonstrations, with four lanterns and screens, on the Diagnosis and Treatment of Diseases and Tumors of Bone.

The first day will be devoted to the fundamental and essential knowledge of the benign and malignant lesions of bone, such as osteitis fibrosa, giant-cell tumors, osteomyelitis, sarcoma and so forth. On the second day, the subject will be the different diseases of single bones, such as the lower end of the radius, vertebrae, etc. The third day will be reserved for the presentation of rare lesions of bone difficult to diagnose. Any member of the medical profession attending this meeting may register such a case by addressing Miss Maude Walker, Secretary to Dr. Bloodgood, Surgical Pathological Laboratory, Johns Hopkins Hospital, Baltimore, Md., enclosing the X-ray films or lantern slides of them (if possible the latter) and sections of tissue, if any. Any member of the medical profession interested in the diagnosis and treatment of lesions of bone is invited.

On account of the size of the ballroom the number must be limited to 800.

Those who wish to attend should write the Belvedere Hotel and register, either requesting the usual rates for a single or double room with and without bath, or the special rates for three or more in a room with and without bath, and the special restaurant rates for a club breakfast, luncheon and dinner. You are advised to bring the answer received from the Manager of the Belvedere Hotel with you and present it when you register. For any further details in regard to this demonstration, address your letter to Miss Maude Walker, named above.

I am very anxious that this invitation should reach radiologists, surgeons, pathologists, and internists who are interested in the subject but have only rare opportunities to observe lesions of bone. In three sessions of two or two and one-half hours each, on three days, with four lanterns and a very remarkable and educational motion picture, the subject can be presented in an almost unforgettable way, emphasizing the essentials and fundamentals in the diagnosis and treatment of bone lesions. All cases registered for presentation on Wednesday, will be sent later to Dr. Bowman C. Cromwell, Director of Clinical Research of the American College of Surgeons, who is Chairman of the Bone Sarcoma Committee. You should become familiar with this registration of sarcoma of bone, if you are not, because you can register all your cases there and receive the diagnosis of a committee, and you can send for groups of bone tumor cases which have been registered, for personal study.

It is impossible except in the largest clinics, for any radiologist, pathologist, surgeon, or internist, to become familiar with the changing clinical, X-ray and microscopic pictures of diseases and tumors of bone as they come under observation earlier and earlier after the first injury or first symptom, and to learn how to diagnose and treat them in the best way.

Sincerely yours,
JOSEPH C. BLOODGOOD.

DOCTOR J. C. SMITH

Dr. J. C. Smith, pioneer Catoosa physician and Tulsan, died July 20, 1930, after several months' illness. He was 54 years old.

Dr. Smith came to Catoosa from Pennsylvania in 1901, and had been active in civic affairs there until he was forced to retire from active practice because of ill health, last year. He was widely known in Masonic circles in Rogers and Tulsa counties and served as county commissioner of Rogers County.

Funeral services were held at the home, Tulsa, with the Rev. C. W. Kerr, pastor of the First Presbyterian church officiating. The body was taken to Neosho, Mo., for burial. Special rites were conducted by the Masonic lodge of Catoosa.

Surviving besides the widow, is one brother, and sister.

RESOLUTION ON THE DEATH OF DR. J. C. SMITH

WHEREAS, in His infinite wisdom, the Great Physician has again permitted that great foe of physical man, Death, to enter our ranks and remove from our midst a brother physician, Dr. J. C. Smith of Catoosa, Oklahoma; and,

WHEREAS, by his long association with us in the practice of medicine and surgery in Rogers County, by his membership in our medical society, Dr. Smith had greatly endeared himself to us,

THEREFORE, BE IT RESOLVED, that we, the members of the Rogers County Medical Society, deeply regret his untimely passing while in the prime of life; and,

BE IT FURTHER RESOLVED that a copy of these resolutions be spread upon the minutes of the society, a copy furnished to the State Medical Journal, and a copy be furnished the family of our deceased brother.

Dr. R. C. Meloy, Chairman.
Dr. W. F. Hays.
Dr. F. A. Anderson.

Rogers County Medical Society,
W. A. Howard, Secy.

DOCTOR ERNEST H. LAIN

Dr. E. H. Lain, Lindsay, pioneer physician of Garvin County, died July 15, 1930, in Oklahoma City, following an operation for cholecystitis.

Dr. Lain was born at Wingo, Ky., August 6, 1878. His preliminary education was obtained at Wingo High School. He graduated from the University of Louisville in

April, 1905. State Certificate issued in July, 1908.

TO THE GARVIN COUNTY MEDICAL SOCIETY:

Whereas it has pleased the Supreme Physician to call from his earthly labors our beloved friend and co-laborer, Dr. E. H. Lain, of Lindsay, Oklahoma, who was a member and constant attendant upon our organization's conventions for many years, yielding the profession of which he was an honored member his unstinted loyalty and untiring effort, and;

Whereas, his wife and child have lost a kind and loving husband and father, and Garvin County an outstanding member of the Medical profession, and the profession itself has suffered an irreparable loss in the death of Dr. Lain:

Therefore, be it resolved that the Garvin County Medical Society hereby tenders to the bereaved family our deep and abiding sympathy in this their hour of great bereavement, and express it as the sense of this body that in the loss of Dr. Lain the medical profession of this County has suffered a distinct and irreparable loss, and the community in which he lived a loyal, upright and honorable citizen, as well as an eminent physician and surgeon:

Be it further resolved that a copy of this resolution be sent to the family of the said Dr. E. H. Lain, at Lindsay, Oklahoma, and that a copy be furnished the local newspapers and the Journal of the Oklahoma Medical Association, of which the said Dr. Lain was an honored and beloved member for many years past.

Respectfully submitted,

Dr. N. H. Lindsay.
Dr. W. P. Greening.
Dr. G. L. Johnson.

The above resolution was unanimously adopted by the Garvin County Medical Society on this the 16th day of July, 1930.

John R. Callaway, Secretary.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Bronchiectasis. Alton Ochsner, M. D., Amer. Jr. Med. Sciences, March, 1930.

It is the author's opinion that bronchiectasis is the most frequently encountered chronic pulmonary affection, occurring even more often than pulmonary tuberculosis.

The etiology of bronchiectasis is varied. Cirrhosis of the lung, acute infectious diseases, such as influenza, pertussis and measles, chronic sinusitis, stenosis of the bronchi and chronic bronchitis are all causative factors.

The most characteristic pathologic finding in bronchiectasis is dilatation, of which there are three types: cylindrical, fusiform, and saccular. The lower lobes are the most frequently involved, probably because of the stasis of the retained secretion.

Symptoms and signs as described in most textbooks undoubtedly represent a late stage of the condition. A patient who has had an antecedent pulmonary infection expectorates large amounts of fetid sputum—this is associated with fever, anorexia and loss of weight. The early symptoms and signs are relatively insignificant. Hemoptysis is a frequent symptom, being present in from 50 to 70 per cent of cases. In the majority of cases and in all early cases, the physical findings are minimal. Almost invariably, however, there is some lagging on the affected side, especially at the base. There is no change in the percussion note except in late cases. Diaphragmatic excursion is usually normal. Auscultation may reveal moist rales at the base of the lung. In the advanced cases marked limitation of motion is present; there is impairment of resonance over the affected lobe; moist bubbling rales are audible; bronchial breathing is present.

The introduction of lipiodol by Sicard and Forestier, in 1922, as a contrast substance has facilitated early diagnosis of bronchiectasis. It made possible the visualization of the tracheobronchial tree by means of the Roentgenray thus permitting the demonstration of any deviation from the normal outline of this system. At the present time it is generally accepted that a diagnosis of bronchiectasis should not be made unless positive roentgenographic evidence is obtained following the introduction of a contrast substance in the tracheobronchial tree.

The treatment of bronchiectasis has been both medical or conservative and surgical or radical. Bronchotomy, because of the almost uniformly bad results, has been almost entirely abandoned. At present the most widely practised surgical procedure is some form of surgical collapse. Artificial pneumothorax, it is generally conceded, should not be considered a curative measure so much as a preliminary procedure, which if not successful, may be followed by more radical surgery.

Bronchiectasis limited to a single lobe is ideally treated by extirpation of the involved lobe. Because of the frequent bilateral involvement and the high mortality resulting from such a procedure, relatively few cases can be treated.

The medical therapy in bronchiectasis has been unsatisfactory; however, postural drainage is of distinct benefit. The repeated intratracheal introduction of iodized oil is of therapeutic value. One hundred and twelve cases of bronchiectasis were treated. Thirty-two per cent were symptomatically cured; 12 per cent showed radiographic evidence of cure; 36 per cent obtained symptomatic relief but following an acute respiratory infection had a temporary relapse; 32 per cent were improved, and are still under treatment. The "passive" method of introducing the iodized oil is the method of choice because of its simplicity and ease of performance. It consists of anesthetizing the anterior pillars of the pharynx, which abolishes the swallowing reflex. Because of the abolition of the swallowing reflex, swallowing is impossible, and the larynx, which normally rises during deglutition to lie beneath the epiglottis

and the base of the tongue, remains immovable. The iodized oil taken into the mouth is then aspirated into the trachea and bronchi.

Primary Carcinoma of the Lung. James Alexander Miller and Oswald R. Jones. *Amer. Review of Tuberculosis*. Dec, 1929.

Pulmonary cancer was almost unknown until the 19th century, when it was recognized with the development of studies in pathological anatomy. Stokes was the first to use percussion and auscultation for the direct demonstration of pulmonary cancer during life. According to him, frequent and severe bronchitis, resisting the usual methods of treatment, is suspicious of malignant tumor. He considered the best diagnostic sign to be flatness and immobility of the lung without auscultatory evidence of ulceration.

Most authors agree that carcinoma of the lung is much more frequent in males than in females.

The origin of pulmonary cancer has been attributed to an overgrowth of a foetal bronchiectasis, atelectatic pulmonic tissue, influenza, pneumonia, old tuberculous lesions, and dust of the street, but these various theories have very little basis of proved fact.

Primary carcinoma of the lung may be divided into three main groups: (1) Carcinoma of the lining epithelium of the bronchi, (2) Carcinoma of the mucous glands of the bronchi, (3) Carcinoma arising from the pulmonary alveoli. Grossly, it may by its growth infiltrate simply the lung, or it may also constrict the bronchus, causing secondary pathological changes in the lungs, such as atelectasis, bronchiectasis, necrosis and pleural thickening. It may be associated with inflammatory changes such as an exudative pneumonia, or an interstitial pneumonitis, and a secondary pleural effusion, either serous, bloody or purulent is frequent.

Widespread metastases to other parts of the body occur from a primary pulmonary carcinoma. They may occur through either the lymph or the blood stream. The more frequent sites of metastases are the pleura, the liver, the regional and remote lymph nodes, other parts of the lungs, the kidneys, the bone, and the brain.

Symptoms of cancer of the lung are cough, sputum, hemoptysis, dyspnoea, cyanosis, dysphagia, pain in the chest, fever, loss of weight, weakness, cachexia, osteoarthritic changes in the extremities, particularly in the fingers, and sometimes chills, anorexia, nausea and vomiting. Hemoptysis is present in more than 50 per cent of the cases. It may vary in amount from slight streaking of the sputum to very severe hemorrhages. Dyspnoea also occurs in 50 per cent of the cases.

The physical signs are not characteristic. X-ray evidence is the most valuable single means of determining the presence and location of a pulmonary tumor.

The diagnosis of primary bronchial carcinoma is very frequently not made during life. It is hoped that by placing emphasis on the occurrence of this disease, earlier diagnosis will be possible and perhaps lead to possible radical cure by surgery. Primary carcinoma of the lung must be differentiated from early tuberculosis, mitral stenosis, benign tumors of the bronchi, bronchiec-

tasis, benign tumors of the lung, cysts or early pulmonary abscess by careful study of symptoms.

At the present little is known that is helpful in treatment. Preventive treatment seems the most promising method. Possibly better treatment of such chronic infections as pulmonary abscess, bronchiectasis and tuberculosis might prevent some cases from developing into carcinoma.

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**DERMATOLOGY, X-RAY AND
RADIUM THERAPY**

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

The Problem of Pigment Formation. B. Bloch.
Am. J. M. Sc. 177:609 (May) 1929.

The author gives the results of his experiments with the dopa reaction, which is the term he uses to designate the reaction of cells containing dopa-oxydase when placed in a 1 per cent solution of $\frac{3}{4}$ dioxyphenylalanine.

His conclusions are briefly stated as follows: In the higher vertebrates, in all places in which melanotic pigment, or melanoblasts are formed, the specific dopa reaction is found to be positive. The dopa reaction was positively related to the production of melanin, and the reaction was negative when this process was temporarily or definitely lacking. Dopa-oxydase, the cell agent responsible for the dopa reaction, was found to have the characteristics of an oxidizing ferment. The nature of the substances producing natural melamins is not known to the author exactly, but it is thought that pyrocatechin derivatives play a role in the natural pigment formation.

Sclerosing Treatment of Varicose Veins by Chemical Irritants. Longfeil and A. W. Dahlstrom,
Am. J. M. Sc. 177:690 (May) 1929.

A sclerosing solution of invert sugar solution (invertose) was injected into varicose veins. The results were practically painless, free of sloughing in the case of extraveneous injection, and produced no general reactions.

The author records ninety-six cases of varicosities of the lower extremities, in which there were twenty ulcers, eight cases of eczema and eight with extensive edema. From 5 to 20 cc. of solution were used at each injection; the average number of injections was between five and six. In ninety-two cases, there were good results; in two cases, fair results, and in two cases, the results were not known.

This method is believed to be the best, by the authors, because there is less danger of embolism, less cost, less pain, no scar, few recurrences and no loss of time to the patient.

The Bacterial Action of Roentgen Rays. Hirsh W. Sulkowitch, *Bull. John Hopkins Hosp.* 44:439 (June) 1929.

The authors have experimented with a small number of organisms with the results that different bacteria show varying degrees of resistance to x-rays. It is apparent that x-rays are deadly to bacteria. The procedures of the experiment with an adequate bibliography have been compiled upon the subject.

Allergic Purpura, H. L. Alexander and C. H. Eyermann, J. A. M. A. 92:2092 (June) 1929.

The authors report six cases of Hennoch's purpura. It was demonstrated that the condition of each case was caused by a sensitiveness to a particular foodstuff as milk, egg, potato, wheat, chicken, beans, lamb, red plums, onions, strawberries and eating-apples. No attempt was apparently made to desensitize the patients.

More Deaths from Thallium. Current Comments. J. A. M. A. 93:122 (July) 1929.

The deaths of three children from thallium poisoning is reported by Merkel in the *Deutsche Zeitschrift für die gesamte gerichtliche Medizin* (13:237, 1929) and commented upon by the Journal. The three children, all below normal physically and mentally, were given the full amount of the drug in divided doses. It is pointed out that the drug should be given in one dose for ringworm of the scalp, and should be lessened for children who are below normal.

Incidence of Foot Ringworm Among College Students. Robert Legge, Lee Bonar and H. J. Templeton, J. A. M. A. 93:170 (July 20) 1929.

The first report on a survey of the incidence of ringworm was made at the University of California. It was found that 53% of the men and 15% of the women were infected with ringworm. A year in college increased the per cent of infection to 79 among the men, and 17 among the women. This the second report made at the University of California. The women were provided a gymnasium with every known sanitary device while the men's gymnasium had none of the sanitary devices, nor were they so strictly supervised as the women. The women students were required to wear rubber bathing shoes and were not permitted to walk bare feet on the floors of the showers or runways to the swimming pools. This is thought to be the single important factor controlling the infection among the women.

Skin Lesions Among Tar Workers. H. B. Wood, J. Cancer Research 13:54 (March) 1929.

The author concludes that the production of tar papillomas and epitheliomas is due to chemical rather than physical irritation and that only the high temperature coal distillates contain carcinogenic substances. Anthracene oil is the principal high temperature content of coal tar. Low temperature distillate tars and petroleum tars are considered non-irritable. Pustular lesions are produced by the heavy oils yielded by the high temperatures in coke-making more readily than the low temperature oils but are not known to cause papillomas. The phenol oils cause dermatitis in susceptible skin. Among the handlers of coke tar at gas works, coke biproducts plants, briquette factories and tar paper and roofing paper factories, tar warts, without epitheliomatous changes were observed. There were a great number of tar warts, but no evidence of occupational cancer was observed. In gas works producing water gas and in briquette factories there was no evidence of tar warts.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Etiology and Pathology of Chronic Deforming Arthritis. John V. Barrow and Eugene L. Armstrong. Calif. and West Med. XXVI, 323, Mar. 1927.

Although this paper was written by internists, it contains valuable points for orthopaedic surgeons because of the fact that the authors cooperate very intimately with the orthopaedic service in the Los Angeles General Hospital.

The deformity produced in this disease is in the nature of bone destruction, compensatory hypertrophy, and spastic irritation. The pathologic changes in the joint indicate that the etiologic factor proceeds from the endarterial tissue of the marrow toward the periphery. Clinical and therapeutic evidence indicates that the gastro-intestinal tract is the most plausible source of the toxins or organisms of lytic destructive powers which produce these joint changes. It is believed that the disease is a general systemic one and that while the joint symptoms are the most outstanding signs, there are many other parts of the body affected.

Of the 245 cases forming the basis of this paper, 235 were gastro-intestinal cases first. Of these, 71.6 per cent showed some abnormality of the bowels, such as constipation or diarrhoea. Protozoa were found in the intestinal tract in ninety-four per cent of the whole group of cases. In only two cases did the disease begin after acute tonsilitis; in thirteen cases after influenza and in the remainder, no history of acute infection of any kind could be obtained. Eighty patients had had all their teeth removed before coming under observation by the authors and in none had this procedure stopped the course of the disease. Tonsils had been removed in sixty per cent of the group with relief in only one case. Seventy-five patients had normal tonsils; eighteen, diseased. Only ten had bad teeth. In the course of the treatment, septic tonsils and teeth were removed but their removal made no striking difference in the progress of the disease.

The joints affected in the order of their frequency were finger and hands, knees, spine, ankles, hips, elbows, shoulders, wrists, sacro-iliac, feet and toes.

The treatment may be classified as (1) parastatic, and (2) physiologic. The first consists in injections of emetin hydrochloride, 0.02, hyperdermically every other day, every third dose intravenously over a period of three weeks, then twice a week for another three weeks, then weekly for a month or two. Salol-keratin coated ipecac pills are also given in many cases. Alcresta ipecac 0.4 in combination with calcium phosphate 0.25, is highly recommended, especially in cases with constipation. Dietary treatment failed to give results. The authors can not agree with Pemberton that glucose tolerance has anything to do with etiology or treatment.

Orthopaedic treatment is of no help if it makes no attempt to stop the cause of the pathologic condition.

In this group, 209 cases were fairly treated and 30.6 per cent of these showed excellent results;

42.2 per cent good results; 20.5 per cent fair results.

A Clinical and Roentgenologic Study of High Colonic Irrigations as Used in the Therapy of Subacute and Chronic Arthritis. R. G. Snyder and S. Fineman, *Am. J. Roentgenol.*, XVII, 27, Jan. 1927.

Emphasizing the frequent multiplicity of causes in the production of arthritis, Snyder believes that in refractory cases, after exhausting treatment of determined foci of infection, or failing to discover any foci, the poor therapeutic results are probably due to existence of infective foci or to toxic absorption in the genito-urinary and intestinal tracts. He feels that the genito-urinary tract has not received adequate attention. As to the colon, in spite of the absence of proof that stasis and infection here will produce chronic arthritis he has empirically used in the past four years, wherever clinically indicated, a system of treatment aiming at elimination and correction of intestinal stasis—this in addition to other accepted treatment. Since doing so, his clinical results have shown a definite improvement. He does not feel that the colon is a factor in all cases, no doubt in many cases it has no relation to the onset. By high irrigation is meant the insertion of a fifty-four inch or longer "Lockwood tube" passing into the colon as far as the splenic flexure or into the more proximal portions of it, as far as the caecum. Proper technique is of the greatest importance, and only by reference to the original article can this be understood. Only by x-ray can it be demonstrated that the tube has reached within the colon, and as this check was not feasible in all cases the authors cannot claim that all the benefit of the procedures in their cases was due to use of the high tube. A minimum course of twenty to thirty irrigations is insisted on; from two to four gallons each time; fresh cultures of *B. acidophilus* are injected into the colon after each irrigation.

"No implication is made that colonic irrigations are a specific cure for subacute and chronic arthritis. . . . The improved clinical results, it would seem, should be attributed to the system of irrigations as a whole."

The article, of sixteen pages, includes a discussion which indicates that such procedure is work for the expert only.

Avulsion Fracture of the Os Calcis, Harold G. Lee. *Boston Med. and Surg. J.* CXCVI, 1000, June 6, 1927.

Avulsion fracture of the os calcis, that is, the tearing away of the upper portion of the os calcis by action of the gastrocnemius-soleus muscles acting through the tendo Achillis, is a very rare lesion. Lee reports a case, with the treatment employed.

While leaning over, the patient, a heavy woman, lost her balance and fell. She suffered immediate pain in the left heel with inability to rise. Roentgenograms showed an avulsion fracture of the os calcis. Open reduction was advised and performed. At operation two lateral incisions exposed the broken fragment and the body of the

os calcis. Chromic catgut sutures, No. 2, were passed through a drill-hole in the os calcis, and over the approximated fragment. These were tightly tied, holding the fracture in perfect position. The wounds were closed without drainage, and a plaster cast applied from toes to groin. X-rays taken five days after reduction showed perfect apposition. The cast was worn for three months, weight-bearing being allowed the latter portion of the time. At the end of six months bony union was complete, and the patient could walk up and down stairs without pain.

UNTOWARD EFFECTS OF TREATMENT BY PHENYLHYDRAZINE HYDROCHLORIDE

The untoward effects of treatment by phenylhydrazine hydrochloride were studied by Herbert Z. Giffin and H. Milton Conner, Rochester, Minn., (*Journal A. M. A.*, May 4, 1929). In a series of forty-one cases in their experience since 1924, twenty-five patients have maintained a very satisfactory condition. Of the forty-one patients, eight have been able to control symptoms due to increased blood volume but are not in good health; in these, the disease is advanced and is accompanied by arteriosclerosis, and hepatic, cardiac and renal disease. Ten of the forty-one patients have died. Two of these presented a very favorable condition, but one met an accidental death and one died of pneumonia. The remaining eight deaths include the four reported here, and four others which apparently did not occur either during or shortly after the administration of phenylhydrazine. Four cases reported occurred in women more than 60 years of age, with advanced vascular and visceral changes. As a result of their experience with phenylhydrazine hydrochloride it would seem wise to declare the following principles of treatment: (1) Patients with advanced polycythemia vera of a grade necessitating confinement to bed should not receive phenylhydrazine. (2) Extreme caution should be observed in administering phenylhydrazine to patients more than 60 years of age, to patients who have marked arteriosclerosis, and to patients who manifest evidence of advanced visceral injury. It is wise to give a very small dose to such patients, possibly only 0.1 or 0.2 Gm., and to observe the effect over several days. This however, should not be done if the patients are bedridden. (3) Patients who have probably had thrombosis should be treated cautiously. (4) Every effort should be made to keep the already sluggish circulation as free as possible. Treatment is best carried out with the patient ambulatory. If a patient is under observation in a hospital, he should be kept on his feet as much as possible; massage and exercise in bed have proved to be satisfactory measures. (5) Excessive dosage in the initial course of treatment is not necessary; a total initial dosage of from 1.5 to 3.5 Gm., seems to be sufficient. The subsequent dosage can be determined by the patient himself in view of his symptoms, and patients with less advanced disease have done exceedingly well on from 0.1 to 0.3 Gm., of phenylhydrazine each week. Experience may indicate that the daily administration of the drug over a period of a week or ten days is not necessary, and that a small dose each week will be safer, and will be sufficient to control the symptoms and to maintain the efficiency of the individual.

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SYMPOSIUM—"SYPHILIS IN INFANCY AND CHILDHOOD."*

- a.—Symptoms and Diagnosis of Syphilis in the New-Born and Early Infancy.
CLARK H. HALL, M. D., Oklahoma City.
- b.—Symptomatology and Diagnosis of Late Manifestations of Congenital Syphilis in Children.
WM. M. TAYLOR, M. D., Oklahoma City.
- c.—Roentgenological Manifestations of Syphilis in Infancy and Early Childhood.
JOHN E. HEATLEY, M. D., Oklahoma City.
- d.—Treatment of Syphilis in the New-Born.
CHARLES B. TAYLOR, M. D., Oklahoma City.
- e.—Bone Syphilis in Children.
W. K. WEST, M. D., Oklahoma City.

*Read in Section on General Medicine, Shawnee, May, 1930.

SYMPTOMS AND DIAGNOSIS OF SYPHILIS IN THE NEW-BORN AND EARLY INFANCY

CLARK H. HALL, M.D.
OKLAHOMA CITY

Syphilis in early life may be either acquired or congenital. The former is not so common but still it is encountered. The course in the acquired type is very similar to that in the adult, age seemingly making very little difference. There is the initial lesion followed by secondary and tertiary lesions. The symptoms are often less severe than in congenital syphilis.

Congenital—Symptoms of syphilis are seldom present at the time of birth, but when present early they are usually quite marked. The highest percentage shows the onset of symptoms between the second and fourth weeks. As a rule the child appears normal at birth. Jeans and Cooke report the most frequent early cause of complaint being some lesion of the skin. This was true in 45 per cent of their series of cases. Still reports a characteristic rash in 69 per cent of his cases. Vesicles and bullae do occur but are not as common as often thought. Hazen found one in 100 cases of

congenital syphilis. A maculo-papular eruption of irregular distribution is usually noted. The color may vary from pink to a copper hue. There is some infiltration and slight desquamation is often present. Induration of the palms of the hands and soles of the feet is often seen. Desquamation frequently follows leaving a glistening reddish appearance. Induration may be noted also about the face, genital and anal regions, and on the thighs. The desquamation may be slight or in some cases it may be quite extensive. These lesions may be so severe that radial fissures occur. They are usually found at the anus, mouth, nose and eyelids. Bleeding is very common and crusts are usually present. Permanent scars are often left.

The nails are often dry and shriveled. Syphilitic paronychia is not common. There may be loss of hair from the scalp and eye brows but it is not often the case at this early age. Condylomata occur and usually about the anus and genitalia. Mucous patches may be found in the mouth.

Syphilitic rhinitis or snuffles is one of the earliest symptoms, being present in over 70 per cent of the cases. Still reports 14 per cent being present at birth. In these cases the condition is too early in its de-

velopment to be due to exposure to a cold in the common sense of the term. The amount of nasal discharge is not very great and local treatment modifies the course very little. There may be so much nasal obstruction that it is very difficult for the child to nurse. Hoarseness due to involvement of the mucous membrane of the pharynx may also be present.

Spleen—Many clinicians consider splenomegaly during the first month due to either tuberculosis or syphilis. Welde found an enlarged spleen in 61 per cent of his cases. Jeans and Cooke found the condition present in 60 per cent of a series of 510 syphilitic infants.

Liver—Moderate enlargement of the liver is frequently found but not in the percentage found with the spleen.

Lymph Glands—In syphilis of the new-born enlarged glands are not of such diagnostic importance as in later life. The glands involved are usually in the neck, groin, axilla and elbow. Enlarged cervical glands at this early period are often due to scalp or nose and throat infections. If there is an absence of local or general cause then an adenopathy is very suggestive of syphilis in the new-born or young infant.

Bone lesions are to be discussed in another paper in this symposium.

There is often a pseudo-paralysis in the extremities of syphilitic babies. Scherer reports finding this condition present during the first few days of life. Usually it occurs a few weeks later. The pseudo-paralysis is usually present in one arm although both arms or legs are sometimes involved. The arm is in full pronation with the palm of the hand upwards. Pain is the cause of the paralysis and not a real loss of function. The extremity is tender and painful and the infant cries when it is moved.

Special Senses—Changes in the eye due to syphilis are not common at birth but appear a few weeks later. Iritis, choroiditis and keratitis are the lesions found. Optic neuritis is reported to occur occasionally. Congenital deafness may be due to syphilis.

Meningitis—Meningitis with restlessness, rigidity, tenseness of the fontanelle, and convulsions may develop. The hydrocephalous which sometimes follows is not extreme.

General Symptoms—The general condition of the infant usually suffers. There

is an anemia which becomes more marked as the condition progresses. The skin has a peculiar yellowish brown appearance. Sometimes the veins of the scalp are very much dilated. Loss of weight is marked and as a rule progressive. Very often the immediate cause of death is the extremely poor general condition. There may be some fever but it is never high unless there is some other complication. Nephritis due to syphilis is sometimes reported at this age but it usually is diagnosed at autopsy.

Diagnosis—The diagnosis of syphilis in the young infant may be quite easy in the typical case while in the obscure case it may be somewhat difficult. The family history is of great importance. Many times there is a history of repeated miscarriages with each fetus living longer. Then a living infant may be born with symptoms that have been mentioned. Jeans and Cooke report characteristic changes in the placenta in 27 per cent of syphilitic cases, and only in such. Usually the typical picture does not develop until a few weeks after birth. Snuffles, skin condition, hoarseness, fissures about the anus and mouth, and a poor general condition are suggestive. Many times the symptoms are not severe enough for the parents to notice them and the patient is brought to the physician for some other condition. There may be some suggestive symptoms and a Wassermann is taken. The diagnosis may be made this way.

Wassermann Reaction—Fordyce and Rosen do not rely upon the Wassermann at birth. A negative reaction at this period does not rule out syphilis. Non-syphilitic new-borns may give positive reactions and syphilitic children may give negative reaction during the first two months of life. Yerington regards a positive Wassermann at birth suggestive but not conclusive. After the first few weeks or months of life nearly all syphilitic infants give positive Wassermann reactions.

In a series of over ten thousand tests on children Jeans and Cooke report the Kahn test as specific as the Wassermann and as rarely gave non-specific reactions, but failed at times to give a positive reaction in young children with active syphilis and strongly positive Wassermann reactions.

The above writers summarize the most important early findings from a diagnostic view point as—placental changes, skin lesions, enlarged spleen, chronic coryza—early, pseudo-paralysis, adenopathy—sug-

gestive, positive Wassermann reaction, and positive Wassermann in parents.

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SYMPTOMATOLOGY AND DIAGNOSIS OF LATE MANIFESTATIONS OF CONGENITAL SYPHILIS IN CHILDREN

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Latent hereditary syphilis corresponds to the tertiary stage of acquired syphilis in adults. Late syphilis may be taken as a rule to mean early congenital syphilis insufficiently treated. Though we can hardly question the statement that symptoms do manifest themselves for the first time at about the age of second dentition or at puberty, with symptoms so obscure that their nature was unrecognized. This form of the disease is often referred to as "syphilis hereditaria tarda."

Rarely if ever, is the manifestation later than puberty. It seems to me that I do not see as much late syphilis as some observers do. There may be several possible reasons for this. First; I may not recognize syphilis when I see it or that some of the other observers have called things syphilis which were not.

Dunn (Dunn's Pediatrics 2nd. edition) says the typical lesion of the late manifestation of syphilis in childhood is the gumma. These lesions appear at about the time of second dentition or often not till puberty. "They represent a new reaction between the syphilitic virus and the host." The symptoms of gumma as they appear in late childhood do not differ from those of the tertiary stage of acquired syphilis in adults. Three of the most striking manifestations of late congenital syphilis in childhood are:

1. Syphilitic periostitis of the tibia.
2. Interstitial keratitis.
3. Hutchinson's teeth.

Tibial periostitis is usually not painful and may be differentiated from old rachitic deformities by the absence of other manifestations of rickets and in which the

bony deformity is smooth and regular. (Morse Clinical Pediatrics, Page 367). Other bone involvement as saddle-nose and nodular masses on the skull represent the most frequent sites of gumma at this age. Dr. Heatley's contribution emphasizing the value of the X-ray of bones is here of great value.

Interstitial keratitis is an inflammation of the cornea in which there is progressive cloudiness, with but little accompanying pain. Both eyes are eventually involved as a rule. The diagnosis is easily made. It does not resemble any other clinical condition I know of, and as far as I can determine means luetic infection.

In the permanent teeth the upper central incisors may show a cupping of the cutting edge and are known as "Hutchinson's teeth." There are other manifestations in the teeth: the first teeth often show a hypoplasia, also the sixth year molars sometimes have a hypoplastic and deformed crown separated from the body of the tooth by a well marked line; so-called "Moon's tooth."

These three conditions are the most outstanding in the picture of late syphilis in childhood. The "Hutchinson's triad" often mentioned includes deformed teeth, deafness and keratitis as pertains to syphilis at this age. If this group of symptoms are present they are pathognomic and even considered separately are of much diagnostic significance.

Condylomata are frequent manifestations of relapse from insufficient treatment in first year of life, appearing in the second and third year. The general nutrition is profoundly affected in childhood by syphilis. Retardation of physical and mental development are often observed. It is in these children that the condition described as infantilism is found. Delayed puberty and anemia often are present. Paroxysmal hemoglobinuria in children is always of syphilitic origin and is cured by the arsphenamines.

The heart and blood vessels are rarely involved, in contrast to the adult type. Arthritis symmetrical with no pain, heat, redness or tenderness should lead to a suspicion of luetic infection. Peripheral lymph node enlargement more particularly the epitrochlear, is found. Spleen and liver enlargement, one or both, though not always present.

It is hard for me to believe that the nervous system escapes some damage in

any case from an infection of such nature as syphilis. (Kilduffe-Clinical Interpretation of the Wassermann Reaction, P. 97). "The advent of serology as a means of studying the manifestations of syphilis has materially altered the understanding and conception of neurosyphilis. It is now recognized that, contrary to former conceptions, invasion of the central nervous system may and generally does take place early in the disease even though its symptomatic manifestations may be long delayed." Among the most frequent definite manifestations are, a moderate degree of hydrocephalus, syphilitic meningitis, defective mental conditions and perhaps epilepsy, and in the presence of any of these symptoms a Wassermann should be made.

Jeans says that the symptoms of neurosyphilis in the infant are often latent. The older the syphilitic child the more likely are we to find clinical evidence of neurosyphilis; that the incidence of neurosyphilis is higher in the negro child than the white, in a series of cases observed in syphilitic children.

Diagnosis is dependent on:

1. History.
2. Clinical manifestations as above enumerated.
3. Persistent stigmata of this disease (Saddle-nose, skull deformities etc).
4. By X-ray of the bones.
5. Wassermann reaction. Blood and spinal fluid.

Again to quote Kilduffe of Philadelphia, in his recent book on Interpretation of Wassermann reactions: "It's true value depends upon its correlation with an interpretation in the light of all other findings, clinical, historical and laboratory of the individual case at hand."

If the clinical symptoms in children point definitely to syphilis even with a negative Wassermann, they should be treated as syphilitic.

ROENTGENOLOGICAL MANIFESTATIONS OF SYPHILIS IN INFANCY AND EARLY CHILDHOOD

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The bones are more likely to be involved in congenital than in acquired syphilis and there is usually involvement of several.

The most common manifestation demonstrated by X-ray during infancy is the epiphysitis which shows as a marked rarefaction or destruction at the epiphyseal line of the long bones. This is present in 70 to 90 per cent of the cases of congenital syphilis in the first three months of life. After this time the evidence of epiphysitis sometimes disappears spontaneously and is expected to respond to treatment promptly. There may be a generalized rarefaction of the skull more marked in the posterior portion. The skull becomes very thin and parchment-like resulting in a very marked decrease in density of the shadow on the film. The bossing of the brow and the destruction of the nasal bone needs no X-ray for demonstration.

Later in life the bones in congenital syphilitic involvement show the same changes as in the acquired form. At this time the most common manifestation is a periostitis which shows as an elevation of the periosteum along practically the entire shaft of the bone but occasionally the elevation may have the appearance of blisters. At this time there may be some destruction of the bone associated with the periostitis. Then again there is sometimes an associated bone production causing a characteristic lacework appearance of the periosteum.

The cortex may become thickened practically always on the convex surface of the shaft, such as often found in the tibia, causing the sabre shin deformity. This involvement of the bone may resolve into an osteitis or a gumma formation.

Syphilitic osteomyelitis cannot be differentiated from a pyogenic osteomyelitis with the X-ray but the clinical signs are entirely different.

Syphilitic dactylitis usually gives a characteristic appearance on the film and is an osteitis involving the entire cortex rather than being limited to the convex border as in the tibia.

Acute syphilitic arthritis does not destroy the joint and can be differentiated from other forms of arthritis if there is an associated involvement of the periosteum of the shaft which we mentioned as being rather common.

So we see that the X-ray shows syphilis to be a bone producing disease and not destructive to the extent as in tuberculosis, osteomyelitis, malignancy, etc., and that any portion of the bone or periosteum

may be involved, or to use the old expression, it has many manifestations.

Yet with all these different manifestations (syphilis of the bones) gives a more characteristic roentgenological picture than any other disease. The one exception being syphilitic osteomyelitis.

TREATMENT OF SYPHILIS IN THE NEW-BORN

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There is no condition in the realm of medicine that calls for better judgment, or greater patience, than syphilis in the new-born. Also, there is no condition that yields more gratifying results when properly handled. With proper care and treatment of prospective mothers, there should be no congenital syphilis. Unfortunately, pregnant women rarely show evidence of late syphilis, and quite frequently present a negative Wassermann. Histories are notoriously inaccurate. No class or creed, or race, are immune to syphilis. Social standing is no barrier to its ravages. We find it in the denizens of the purlieus, in the ranks of the working people, in the middle classes, and amongst the specially favored of fortune. Since it is so universal; since it is so skillful in masking its presence, no examination of a pregnant woman should be considered complete without a serological test—and this should be made early in the pregnancy—certainly before the fifth month. The obstetrician who allows a baby to be born with active evidence of syphilis, after watching and advising the mother through her pregnancy, should sharpen his diagnostic acumen and hold serious converse with himself.

A pregnant woman with syphilis may be promised a baby free from stigmata if she is treated vigorously during the last five months of her pregnancy. This treatment should be carried out without a rest interval to within two weeks of delivery.

The work at Holmes Home of Redeeming Love, a home for unfortunate girls, furnishes rather a large per cent of syphilitic mothers. Those that we see prior to the fifth month invariably have babies free from stigmata and serologically negative. Those that we see later than the sixth month, do not. Because a child born of a syphilitic mother who has been treated intensively for five months is born free

of stigmata and serologically negative does not mean that later on symptoms will not develop. It will take many more years of observation and a better system of follow-up before definite conclusions can be drawn. My personal belief is that all children born of syphilitic mothers, when the mothers were treated before delivery, should be treated for at least two years as "Life Insurance." This expression is culled from Stokes' and I like it so well I am using it here. Any pregnant woman with a history of syphilis, regardless of the amount of treatment she has had; regardless of the time that has elapsed since a supposed cure, should be treated again; intensively during the last five months of her pregnancy. Since we have no way of definitely proving a cure of syphilis, we are not justified in subjecting the unborn baby to the danger of entering the world afflicted. The treatment of the mother does not vary materially from that which is given other syphilitics. The arsenicals, in conjunction with mercury, are to be preferred to bismuth. It is well to remember that pregnant women will tolerate relatively larger doses than the average case.

More than half of the babies born with syphilis will present some of the stigmata within the first three months. Most common at this age are manifestations in the bony structure; "snuffles;" inability to gain weight—sometimes deafness. Active lesions of the skin are rare.

Dennie', who sees many cases of syphilis in the new-born, lays great stress on the roentgenological examination of the bones. He says: "The roentgenological view is diagnostic, in that the worm-eaten areas can be seen between the epiphysis and the diaphysis, and often the capsular portion fits like a cork in the end of the shaft." "The long bones are most often affected, although the lack of development of the bones of the nose, face, and upper jaw is constantly observed."

Syphilis in an infant differs in no way from syphilis in an adult. The treatment is the same. Just as we do routine spinal punctures in adults, so should we do them in infants. In most infected infants we find the spinal fluid positive. Continued punctures done as the treatment progresses, usually shows an improvement until a negative finding is obtained. In the cases presenting exostoses, the piling up of excess bony tissue is stopped, but the existing growth remains as a monument to the

disease. Where there has been destruction of bony tissue there is replacement. Those that escape detection at this time quite frequently do well until the time of second dentition.

In addition to the acute things that bring the child to our attention, certain signs that have escaped observation are found. Enlarged frontal bosses; imperfect development of the bones of the upper face; sabre shins.

We do not know when to stop treating these children. Dennie¹ advocates treatment at intervals throughout life, since the future of these children cannot be prognosticated. Mercury is the sheet anchor in the treatment of these babies. It should be given by inunction and intramuscularly. Neoarsphenamine, in the blood stream, not in the muscle, in the early months clears up the symptoms more rapidly than mercury and is well tolerated.

Conclusions: (1) Syphilis in the newborn occurs more frequently than is generally supposed. (2) The time to treat syphilis in the infant is before it is born. (3) Treatment of syphilis in infants must be continued indefinitely.

¹ Dennie, Charles C.—Monthly Bulletin, Kansas City Southwest Clinical Society, February, 1930.

² John H. Stokes—Archives of Dermatology and Syphilis, December, 1921.

BONE SYPHILIS IN CHILDREN

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The most important aspect in the consideration of syphilitic bone involvement in children, is the differential diagnosis. It has been our experience that the type of bone syphilis, which has been incorrectly diagnosed and incorrectly treated, is that child in which the syphilitic change in the bone has shown up between the tenth and fourteenth year. These cases are fairly prevalent, but not as commonly found as rickets, tuberculosis or osteomyelitis. Osteomyelitis may take on several different clinical pictures, as regards to clinical aspects and pathological changes as shown by the X-ray pictures. That is, we may see the slow developing non toxic sclerosing bone production with very little destruction. Or we may see a rapidly destructive type, with high fever, with high leucocyte count, etc. The latter being typical of pyogenic osteomyelitis and we will not be

confused in our suspicion in bone syphilis, because syphilitic infection practically always comes on slowly, and in the case of destructive suppurative periostitis, it is rarely very painful until later, when a mixed infection develops.

In all cases of bone involvement in children, especially where more than one bone is affected, a Wassermann test should be made, which in this particular type of syphilis, is very accurate. And if found positive, the child should be treated conservatively, as far as surgery is concerned, and referred to a man well informed in the treatment of general syphilis of children.

It is uncommon in our clinic, to see a typical case of hereditary bone syphilis treated prior to our initial examination, by radical surgical means. This results in no improvement, and in many cases secondary infection develops, and we have multiple pyogenic osteomyelitis.

In conclusion, I wish to state that a careful study should be made of the history of the child, and that accurate X-rays should be taken of several bones, other than the one more involved. The tibia is most often over developed and in the old neglected cases, results in the typical "sabre shin." It is rarely necessary to do any open operation for drainage, unless other infection is causing toxic symptoms. Therefore, we depend upon general anti-syphilitic treatment, plus the use of mechanical support for the prevention of contractions and the relief of pain.

THE RELATION OF SYPHILIS TO INTERNAL MEDICINE*

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Following the discovery in 1905 by Schaudinn and Hoffman of the infecting organism of syphilis and the establishment soon after of biologic tests, there was formed what has been called the newer pathology of syphilis. This has made it possible to follow syphilis through its symptomatic course and has written the story of syphilis that moves with the smoothness of a narrative. The sequence of visible and invisible changes, mechanisms, and manifestations have been found to keep step with one another in

*Read in Section on General Medicine, Annual Meeting Oklahoma State Medical Association, Shawnee, May 1930.

the unrolling of this picture. As we consider this disease in its relation to the internist, we find that phase which interests him most, because of its insidious progress, is the latent period. The inclusion into the luetic group of many clinical entities, which hitherto had no sound place in the natural history of the disease, has enormously enriched clinical medicine in all its fields and in no other field have the bounds of our knowledge been extended further than in that of internal medicine. I think that it would be safe to state that a great many of this audience were contemporary with this change and with that wonderful advance in bacteriology and immunology which has characterized the last four decades in medicine. As we consider in retrospect these forty years, we cannot help but wonder at the memories and thrills of enthusiasm that were in store for those who entered and practiced medicine during this period. There was a great optimism engendered with the discovery of each new infecting organism and the problems of eradication seemed simple. The literature of the period reflects this seeming victory. The problem of infection was simply the presence of the infecting agent and the damage done by that agent. Soon, this conception changed. It meant more than this; there was a reaction on the part of the human body. From this simple early conception of bacteriology medicine advanced to the more difficult problems of immunology, and infection gradually came to be known as an ever changing biological reaction between two living biological systems,—the infecting agent on the one hand and the human organism on the other. The apparent "healing or cure" of a disease may mean that the infecting agent and the host have entered into a sort of partnership in which the body has adapted itself to the organism, and the organism to the body; and as in all partnerships, for a while, both are satisfied. The organism has acquired a saprophytic symbiotic existence and the body has acquired what we call immunity. This is the history especially of the infection of syphilis as it is related to the problems of internal medicine. The studies of this parasite in human tissues have revealed this newer pathology to mean much. It is found that in those individuals who are apparently well, reveal no clinical signs of syphilis, and have no reactions which indicate the presence of active infection, certain

organs and tissues may show the presence of spirochetes, and associated with these organisms there are slight pathological lesions which do not present themselves above the clinical horizon. The same condition is found in the organs and tissues of apparently cured cases which have definite clinical histories. It is further observed that in patients with or without a clinical history of syphilis who present the various clinical pictures, such as myocardial disease, aortic sclerosis, chronic nephritis, diabetes, hepatitis, and many vague and uncertain clinical entities, not diagnosed, the same organisms and the same tissue changes are present, and show that these conditions are in reality due to syphilitic infection. In all of these supposedly arrested cases the spirochetes are not entirely inactive but are causing tissue changes. These damages are shown however in an entirely different clinical manner from that generally accepted as syphilis. These represent those cases not seen by the dermatologist or syphilologist but find their place in the field of the internist, when the damaged tissue is extensive enough to manifest itself clinically. In diseases with an obscure etiology the occasional pleasing therapeutic result which attends anti-luetic treatment may lead more than lightly to the inference that syphilis may have played a greater part than an accidental role. The necessary brevity of this essay does not allow other than mere mention of some of the problems of syphilitic infection which face the internist and which follow in the wake of the greater concept of syphilis from the internists' viewpoint.

A short study of the vital statistics would be of interest. We find that such an examination of statistics when properly compiled gives accurate information as to the cause of death, but not so in the story of syphilis. Syphilis seldom or ever appears on death certificates; it just isn't written there. There are two reasons for this. One is clinical and the other sociological. On the clinical side the relation of the cause and effect is lost sight of, because of the long duration of the infection and the slowly progressive nature of the clinical manifestations which arise from it. Definite names which carry more respectability, such as myocarditis, aneurysm, cerebral hemorrhage, and the renal complications of tabes are given to dignify these records. Sociologically, the relatives and the friends must be comforted

and deceived. We have therefore at the present time no correct estimate of the incidence of syphilis.

In the entire field of organic disease there is no part in which a prognosis is more difficult than in certain forms of visceral syphilis. It is well accepted that both hereditary and acquired syphilitic disease may affect every viscus, but by reason of enormous frequency to all others there are two forms of visceral involvement which cause greatest concern. These are the various forms of cardio-vascular and hepatic involvement. Should we remove from the internist's scope these two great incidences in the sequelae of constitutional syphilis the remaining clinical pictures of visceral luetic disease would play a minor role in his field of clinical pathology and practice. It is the conceded opinion of such pathologists as Warthin, Ewing, and MacCallum that heavy disease tissue may exist without clinical manifestations. To the clinical pictures of hepatic syphilis and their relation to the cirrhosis much has been added to clear up the confused pathologic and symptom complex of liver disease. However, much remains for solution. It is common medical teaching that syphilis may portray in the liver almost every clinical symptom from acute yellow atrophy to hypertrophic cirrhosis. Many of these pictures described as entities are merely pathological steps in point of time in the same process and much confusion comes from a failure to so recognize them. An enlarged liver with or without ascites and with hypertrophy of the spleen has been seen by one clinician, and the same case appears at a later date as *hepar lobatum* or cirrhosis with atrophy. The liver is known clinically for its recuperative power and in no organ do large gummas appear and disappear so readily with or without symptoms as in the liver. A persistent slowly developing jaundice is suggestive of malignancy in contrast to jaundice of syphilitic hepatitis which is usually mild and periodic in its course. It is usually produced by exacerbations of hepatitis and is non-obstructive but it may occur as typical obstruction with white stools. The treatment of the liver, instead of being simplified by modern methods, has been increased in complexity. However, with proper applications of fundamental principles, these methods have improved the outlook of the patient for a permanent result and restoration of normal function. The luetic liver furnishes

the example par-excellence for the ideal site of the Herxheimer reaction and the therapeutic paradox. It follows, therefore, that any treatment of liver syphilis must be carried through to prevent relapse, and a state of affairs worse than at the onset. Rapid healing with fibrosis in the liver results either in a diffuse contraction or in obliteration of portal circulation. If the same degree of healing can be brought about slowly, a physiological adjustment may be accomplished, and by developing from the hepatic parenchymatus reserve a collateral circulation or new bile ducts, the patient may be saved, as Udo Wile says, "from dying from the cure of his own disease." This in no way covers the pathology and treatment of hepatic syphilis, but time bids us pass on.

Syphilis, as it affects the heart, has fully as diversified a group of pathological pictures as occurs in the liver, and, as in this group of hepatic disease, these represent different phases of the same, rather than separate, conditions. It must be remembered that here, in contrast to the liver, we are dealing with an organ that has not parenchymatus reserve. In other words, a destroyed muscular fiber of the heart is gone for good. When viewed pathologically, these conditions may be the result of the degeneration and absorption of multiple minute gummas, diffuse infiltrations, degenerative changes near the terminals of the coronary arteries, and scar production from an obliterating endarteritis. Clinically, these varied processes present themselves as more or less severe grades of myocardial disease. The changes in and about the aortic ring give the varying symptom complex of aortitis and aortic regurgitation. Coronary involvement is so common that it is usually considered as a part of the picture of myocarditis. Broadly speaking, then, clinical syphilis of the heart resolves itself into a consideration of the symptoms dependent upon myocarditis, aortic regurgitation, aortic aneurism, aortitis and coronary diseases. It is not hard to suppose that none of these conditions exist alone, and disease of the heart muscle has a part in each case. As Brooks has stated, the treatment of syphilis of the heart resolves itself into two distinct factors: the syphilitic infection, on the one hand, and the cardiac defect on the other. The inevitable result, then, has been that the syphilologist, highly specialized, but lacking modern methods of diagnosis of cardiac disease, treats

the case from the standpoint of an infection, and gives too little of his attention to the diseased heart. On the other hand, the internist, fully equipped with all the modern instruments, and methods for cardiac investigation, naturally finds his chief concern in the diseased heart, and the extensive constitutional features of the case are too often neglected in his treatment. The general treatment of cardiac syphilis must necessarily, as in the hepatic groups, follow well founded principles. The therapist must be ever mindful of therapeutic shock and paradox. This is especially true of aneurism. Here, the iodides deserve a high place, and their continuous use is almost imperative. Besides this specific treatment, other measures are important; such as, restricted activity, relief from nervous strain, sedatives, digitalis, diet and other general health measures.

The co-existence of syphilis with many other maladies oft times calls for the exercising of critical judgment. We find this exemplified in the association of syphilis with thyroid diseases, diabetes, cancer, pulmonary disease, and gastro-intestinal disturbances; and the dermatologist has to ever be mindful of the presence of syphilis. Of great interest and seeking an early solution is the relation of pre-existing syphilis to the general syndrome of hypertension. The condition as found here is not as we would expect. Syphilis, the disease, by seeming pre-disposition as a producer of arterial damage in all sized vessels and heart muscles, plays only a minor part in the clinical pictures of general arteriosclerosis and hypertension.

The great subject of neuro-syphilis is of much concern to the internist because it presents a varied picture. In reporting on two hundred syphilitic patients whose chief complaint was stomach trouble, Stokes and Brown found neuro-syphilis in seventy per cent. Late syphilis of the nervous system, long regarded as untreatable, is now found to yield so rapidly to improved methods of diagnosis and treatment that it is not too much to state that it can usually be mastered from the practical standpoint. The accuracy of diagnosis which existed two decades ago has been put on a much higher plane through the

examination of the spinal fluid alone. In this, as in all fields of medicine, the secret to success is early diagnosis before destruction is paramount. Symptoms such as headache, paresthesias, and lightning pains, are phenomena of irritation, and are found as signals in the early and treatable phase of the disease. Argyll-Robertson pupils and lost reflexes show but little response and represent, on the whole, irremediable damage. Habitual painstaking examination is the only measure for the detection of the early signs, and the spinal fluid examination nearly always clears a diagnosis.

A prognosis of a case of syphilitic infection is usually among the first questions of the anxious patient. To the man who bases his opinion upon the response of the visible accidents of infection to treatment, much disappointment is in store. It is unfortunate that the majority of observers see only that phase which occurs in their fields; and few of these have the opportunity to follow that patient from the initial infection through the varied possible clinical manifestations. Too often the visible lesions are treated until they disappear and the prognostic views are influenced too much by the manner in which these respond to treatment. It is only by piecing together the scattered observations by clinicians, pathologists and serologists, that we can obtain our imperfect conception of the prevalence and possibility of the great infection of syphilis.

The variations undergone by the treatment of syphilis in the different ages form a curious history, and now the treatment in all its complexity fills our libraries. The first principle of treatment is to be mindful of the pathological process in question. The subjects we have to treat nearly always present, independently of their syphilis, a certain pathological individuality, which is eminently variable. This makes it imperative that we consider the patient himself as well as the administration to him of specific remedies. This man, the patient, himself, is too often a neglected individual. Besides our mechanical assistance to him, our task is to strengthen his intellectual control, to toughen his shrinking sensibilities and adjust the burden to the bearer. Thus may we also add to the sum total of human health, happiness, and progress.

THE EFFECT OF GAS EXPLOSIONS UPON THE HEARING

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The legal profession has issued a friendly challenge to the medical profession to establish definite proofs of the effect of certain injuries to the hearing apparatus so that courts of equity may be able to determine just compensations to those who have sustained these injuries.

Much less than a century ago scientific investigators first explored the ear beyond its middle portion. The inner or perceptive organs of hearing occupy such a tiny space in a bone so securely hidden, and are surrounded by such vital structures, it is not surprising that only the delvers of the obscure have dared to penetrate this mysterious field. Too much credit cannot be given to the research workers who by their arduous labors have given to the world that enlightenment that makes this a field in which the ambitious now may venture.

"Until a few generations ago so little knowledge was absolute, and the human mind so willing to doubt all evidence which could not be proven, that it was quite difficult to establish the obscure." "The whole topic of audition is now one of the most thrilling and alluring of all problems of science." Clinical experience has made it possible to diagnose certain lesions, and pathology has established definite evidence whereby a positive diagnosis may be made of many diseases and injuries of the delicate structures of the inner ear. By the analysis and comparison of symptoms we have been enabled to deduct certain evidence that assists us in estimating the pathological conditions that might be expected from inflammatory changes, caused by diseases and traumatic conditions.

It has long been proven satisfactorily that certain definite portions of the cochlea degenerate as the result of exposing them for a long time to a continuous sound of certain pitch. In the same way that the continuous use of the piano loosens its strings so does repeated concussion destroy the equilibrium of the sound perception of the cochlea.

It has also been determined that high explosives over a piano will destroy its harmony. The same concussion will pro-

duce a disturbance in the labyrinth that will result in a partial and sometimes a total loss of hearing.

After these facts had been established firmly there remained the most difficult problem to solve, as to how these continuous sounds produced the loss of hearing. One of the first theories advanced was that it was probably due to the concussions of the fibers of the nerves in the cochlea and the semicircular canals. A more enlightened experience proved that the semicircular canals were not disturbed in the cases produced by monotonous sounds and rarely in the cases where there was almost a total loss of hearing by high explosives. Post mortems have revealed that the lesions in the labyrinth were produced either by hemorrhage or an edematous condition of the basilar membrane. Our older text-books are replete with the histories of cases where telegraph operators have sustained loss of hearing from the constant ticking of the instrument to which their ears had been continuously exposed, often in the ear that had been subjected to the ticker most usually. I have recently had a patient who said her hearing had been very much impaired by the clicking of a sewing machine which she had run for several years.

In our institutions where aural diseases are treated, as well as in the individual experience of those who have treated the ear, a wealth of information has been garnered on the loss of hearing. For example, the monotony of sound from continuous hammering makes many a boiler-maker sustain almost a complete loss of hearing. Also, Braun and Freisner have cited the experiments on the hearing of guinea-pigs which have been subjected to the same tone, repeated over and over again, through a long period of time. The animals were killed and the cochlea examined histologically. In the animals where a high pitch was employed there was regularly found degenerative changes in Corti's organ in the basil whorl of the cochlea. Where a low pitch was used, the degenerative changes appeared in the upper whorl. The destruction of these portions of the cochlea alone would not account for the loss of hearing sustained by telegraphers and boiler-makers as the entire cochlea was affected in these cases. What really does happen in an ear that has been subjected to continuous sounds is the production of hyperemia of a definite

spot (as a noise near a piano will cause to vibrate certain strings on the piano so do certain pitched sounds stimulate definite places in the cochlea). This hyperemia develops into an edema which spreads throughout the basilar membrane producing a permanent loss of hearing throughout the cochlea.

After the recent World War the military surgeons reported a vast number of casualties where the loss of hearing was partially or totally from the effect of high explosives. There are a few veterans of the Civil War living today who lost their hearing from cannonading, as an evidence that this may be permanent.

Dr. J. Gordon Wilson, M.B. (Chicago) in his very interesting report of his experience with those who had sustained lesion of the ear from high explosives said: "In the present conflict which is pre-eminently the war of trenches and high explosives, cases of concussion deafness are numbered by the thousands. I know of no available figures that can help us to form even an approximate estimate of the number injured in hearing either temporarily or permanently by shell explosions." Dr. Wilson also cited experiments that had been made on animals to determine the effect of pistol shots fired near the ear. Some of the animals were killed at once, others at varying times, with results found as follows: there were, consistently, ruptures of the tympanic membrane and hemorrhages into the middle cavity; pathological changes were present in all the coils of the organ of Corti; the hair coils were swollen, had lost their characteristic shape and were loosened from their support; Deoter's cells had lost their normal appearance and appeared as an homogeneous mass; the cells of Henson were flattened out; the pillars of Corti were bent and the tunnel filled with an homogeneous mass, probably of extravasated contents; Nuel's space could no longer be seen; the tectorial membrane was raised sharply up and in extreme cases its free end reached Reissner's membrane; in the nerve fibers changes were seen, especially in the myelin sheath; etc.

It is the entire purpose of this paper to present for your consideration the injuries sustained by workers in the gas fields, and to emphasize their importance. These sudden explosions frequently hurl men through the air a considerable distance where they are picked up in a per-

fect condition of shock, most of them dazed, some of them unconscious. The most permanent injury sustained is a loss of hearing for which courts of equity must rely upon the testimony of the otologist to fix the indemnity that justice demands. It would be interesting to know how much of this testimony is influenced by the demands of the insurance companies who pay the physicians for their services. So far as I have been able to determine there has never been a written report of these particular injuries, neither has there been a recorded post mortem showing the lesions produced. We are enabled to form a reasonable conclusion from the accumulated evidence showing the pathological conditions created by continuous noises and heavy cannonading, and by explosions of gas bombs on the battle fields, and this evidence establishes an intelligent understanding of lesions produced by a far greater force.

In an explosion of a gas well the shock felt and the injuries sustained are often greater than any produced from the concussive forces of cannonading: the drum membrane may or may not be ruptured, there may be an hyperemia of the tympanic cavity, the stapes may be driven inward through the foramen ovale, there may be a hemorrhage in the cochlea, or there may be an edema of the cochlea and general pathological conditions described under concussion from cannonading and bomb explosions; from which there may arise a partial or total loss of hearing which may be a temporary or permanent handicap.

DIFFERENTIAL DIAGNOSIS

It is the malingerer to whom the charlatan lawyer is some times *particeps criminis*, who is often nauseous to the courts, and who makes it imperative to the aurist to make a discriminating diagnosis.

In any case where the patient claims to have lost his hearing from an accident it is quite natural for the otologist to speculate how much of this loss may be attributed to some pathological condition that may be found in the nose and throat, and he should always make a systematic examination of these organs.

Among the diseases, to which I shall only briefly refer, from which we must make a differential diagnosis are: progressive deafness, otosclerosis, syphilis, Meniere's disease, atheromatous degener-

ation, suppurative labyrinthitis, and the taking of certain medicines.

I think it quite sufficient to say that defective conditions of the nose and otosclerosis may be eliminated if the deafness has occurred suddenly as it requires from one to twenty years of the two former conditions to produce deafness. It is impossible to diagnose absolutely syphilis from any symptoms that may arise from the ear, and we must look for other attending symptoms which should be confirmed by a Wassermann.

Meniere's disease no doubt usually depends upon some circulatory disturbance and is ushered in by the syndrome of sudden occurrence of deafness, tinnitus and vertigo and some times vomiting, whereas vertigo and vomiting rarely attend the symptoms produced by sudden explosions. It is pre-supposed that an atheromatous degeneration of the labyrinth will be attended by this condition of the blood vessels throughout the body. Purulent labyrinthitis is invariably accompanied by spontaneous nystagmus, vertigo, and disturbance of equilibrium, and associated with meningitis, syphilis or other disease.

The auditory nerve seems to be more susceptible than any other nerve to the action of certain drugs circulating in the blood. Quinine, salicylic acid, morphine, chloroform, tobacco, alcohol may cause a temporary disturbance of function or a permanent disturbance if continued in large doses for a considerably long time.

There is a psychological aspect that demands consideration in all serious cases of trauma: the injured person nearly always worries over just how much he is going to be incapacitated by the injury, sometimes he worries over the support of his family during the time he does not draw a pay check; he usually becomes suspicious from this mental worry and believes that justice is blind and will rob him in the final settlement. We have learned by experience that this mental condition will never improve, but often grow worse, the longer these cases are protracted and that this neurosis often disappears as soon as the case is settled and dismissed. So every case should come to trial and be disposed of as soon as possible.

Finally, the lawyers know as little about medical questions as the physicians do about questions of law and it must be on

the intelligent testimony of the physicians that the presiding judge must depend for the solution of medical problems. In order to clear the medical profession of the stigma caused from the testimony given before our intelligent courts, by certain careless physicians, it becomes the honored duty of every member of this body, after a correct diagnosis has been established, to testify only the truth and real facts that have been found, regardless of the interest of the claimant or defendant.

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STREPTOCOCCIC SEPTICEMIA WITH THE MIDDLE EAR AS THE IN- FECTION ATRIUM*

A. C. MCFARLING, M.D.
SHAWNEE

Since it is estimated that streptococci are responsible for more than eighty per cent of all blood stream infections, we are confronted with the importance of studying the various biologic groups of this organism, the respective cultural characteristics and pathogenicity of the different strains, as well as the serologic problems thus imposed. Although a vast amount of research has been done looking to a proper classification of the various strains, little of a definite and dependable nature has been accomplished. However, recent reports from some of the researchers tend to justify the hope that the comparatively near future may furnish us with some solution of the problem.

Tunncliffe of Chicago, from the John McCormick Institute for Infectious Diseases, in an article recently published in the Journal of the American Medical Association, says in part, "In studying colonies of hemolytic streptococci on chocolate agar, I find that typical cultures from erysipelas produce a vivid green after twenty-four to forty-eight hours growth, while those from scarlet fever produce no color change, except occasionally a slightly greenish tinge, after several days incubation.

This difference in color reaction on chocolate agar of streptococci from scar-

*Read before the Eye, Ear, Nose and Throat Section, Annual Meeting Oklahoma State Medical Association, Shawnee, May 27th, 1930.

let fever and erysipelas appears to be further evidence of their biologic difference and is in agreement with the specificity of the immunity tests of these two forms of streptococci." Parenthetically stating the immunity tests to have been opsonification, agglutination and toxin neutralization.

It was further found in this same series of tests that although streptococci from septic sore throat, also cause chocolate agar to become green, immunologically they do not belong to either of the other groups mentioned.

In studying streptococcic septicemia, it would be very interesting at this juncture to discuss all the ports of entry accessible to this organism together with environmental influence affecting the same, but such a discussion would go far beyond the scope of this paper. Suffice it to call your attention to one or two points in connection with those cases of sepsis in which the invading organism reaches the blood through the ear. Its presence in the ear being easily accounted for, in as much as medical literature is replete with reports substantiating the statement that hemolytic streptococcus is constantly present in the deep tonsillar crypts, while streptococcus viridens may be found on the surface of normal mucus membrane. The angina of scarlet fever or diphtheria, the septic sore throat, may be the initial lesion of a streptococcic sepsis. Streptococcic sepsis may also follow local foci of infection in or about the mouth.

The middle ear is a very important portal of entry for the streptococcus. Everyone is familiar with those cases of sepsis which come secondary to a more or less violent otitis media, localizing in the mastoid process and in which the invasion of the blood stream may not be suspected until surgical intervention reveals a sinus thrombosis or some other equally grave complication. But for the purposes of this paper, I wish to use the term sepsis to denote those symptom groups or diseases which result from the general invasion of the body by infectious organisms or their toxins, and in which the blood infection or intoxication is predominant in the clinical picture. The otitis media, which is the starting point of the process, may be acute or chronic and with or without perforation of the tympanic membrane. The lateral sinus may become in-

involved in rare cases, without symptoms or signs of the mastoid involvement, and with only the systemic symptoms and congestion of the upper segment of the tympanic membrane to suggest the true state of affairs.

The following case report may be of interest in this connection, since it had its inception in a mild throat infection, was apparently transmitted to the tympanic cavity, from whence it found its way into the blood stream.

Name—C. M. Age—9. Past history negative, except previous attacks of tonsillitis. Developed a mild tonsillitis, which was followed in five or six days by an otitis media. The tympanic membrane was incised with free drainage, which lasted for about ten days. This was followed by two or three days in which there was neither drainage nor rise of temperature. Then a temperature of 101 developed, associated with pain over the right ear, extending into the occiput. Onset sudden, with violent convulsions. Temperature within four hours ran to 106. The ear was again opened with very slight drainage. Temperature continued from 102 to 106.5. Blood cultures were made and found positive for streptococcus hemolyticus. Streptococcic serum was given with no results. One per cent solution of mercurochrome was given intravenously, in doses ranging from 6 to 10 c.c. Doses were repeated every three or four days. Following the administration of mercurochrome, temperature would fall almost to normal, remaining for twenty-four to forty-eight hours. Patient would then have a severe rigor, temperature 105 to 106. This continued until the fifth dose, following which the patient made a fairly rapid recovery, temperature never going above 100. No other complications.

While no treatment has, as yet been found, which is of sufficient definite value to warrant the expectation of results with any degree of uniformity when consecutively employed; yet the general trend of research on this question does much to engender the hope that the biologic difference in the various strains may be sufficiently well known in the near future that proper serologic treatment may be available to inhibit the propagation in the blood stream of the different growths, without the long wait for the remedy, by our present autogenous methods.

CHEMICAL ANALYSIS OF THE BLOOD AND FUNCTIONAL TESTS AS AN AID IN DIAGNOSIS*

V. G. ISVEKOV, M.D.
SHAWNEE

The chemical analysis of the blood, the same as functional tests are not so popular among the general practitioners as the so-called "Routine Urine Analysis" and "Blood Count." The main reason for this is probably the fact that while the previous "routines" could be done either by the physician himself, or by his nurse, the latter requires an elaborate laboratory equipment and also a highly trained technical operator.

Urine analysis and blood count are already recognized as routine by the profession even in private practice, and scarcely would any one attempt to make a definite diagnosis of appendicitis without checking the total leucocytes count. More and more every day the physician realizes the importance of chemical analysis of the blood, and it is only a question of time before this analysis will become a necessity, just as it has already a part of the routine in the leading hospitals.

jority of towns, and are available within reasonable distance to most practitioners.

CHEMICAL ANALYSIS OF BLOOD

The size of this paper will not permit an elaboration of technical details of analysis, and description of physiology of the components of the blood. Therefore we will only briefly refresh in our memory the normal limits of a few of the most important components of human blood, and show the pathological conditions in which these components undergo changes. The knowledge of these factors will be of great assistance in the diagnosis of many diseases and also in its prognosis.

Chemical analysis of blood was first made and originated in this country by the American investigators, namely Folin, Benedict and Van Slyke.

According to Hawk, the blood of the normal individual is composed chiefly of the following constituents: (Table 1).

In order to help the general practitioner who seeks a correct interpretation of laboratory findings, let us review their significance and indicate the conditions in which normal constituents become altered.

Non-Protein Nitrogen.-N.P.N.—A considerable increase of this constituent is found in cases of interstitial nephritis,

TABLE 1

| CONSTITUENTS | ACCEPTED NORMAL RANGE |
|--|--|
| Non-Protein Nitrogen | 25 to 35 Mgms in 100 cc. of whole blood. |
| Urea Nitrogen | 10 to 15 Mgms in 100 cc. of whole blood. |
| Uric Acid | .2 to 3.5 Mgms in 100 cc. of whole blood. |
| Creatinin | .1 to 2 Mgms in 100 cc. of whole blood. |
| Glucose | .75 to 100 Mgms in 100 cc. of whole blood. |
| Cholesterol | 150 to 190 Mgms in 100 cc. of whole blood. |
| Chlorides, as NaCl | 450 to 500 Mgms in 100 cc. of whole blood. |
| Calcium | .9 to 11 Mgms in 100 cc. of whole blood. |
| Inorganic Phosphorus | .3 to 4 Mgms in 100 cc. of whole blood. |
| Alkali Reserve, or CO ₂ in plasma | 55 to 75 vol. per cent. |

Fortunately for the profession, the number of adequately equipped clinical laboratories is daily growing. At the present time a hospital or clinic could not be called modern without having a clinical pathologist on their staff. Private laboratories under competent management are at the disposition of physicians in the ma-

mercurial poisoning and in acute intestinal obstruction. The figures above 200 mgms. are not at all uncommon in cases of chronic interstitial nephritis, and they signify a grave prognosis. A less marked increase is usually observed together with the increase of other nitrogenous components, such as urea, uric acid and creatinin.

Urea Nitrogen.—A slight increase may

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often be observed in cases of diabetes mellitus, though the component is not characteristically altered. Slightly increased urea nitrogen content is also associated with the early stage of interstitial nephritis, with certain pathological conditions of the prostatic glands, and with eclampsia. In the last named condition an increase in urea nitrogen is most characteristic. In the terminal stage of nephritis this component is often increased to 10 or 20 times the normal amount, and the figures sometime reach 200 to 300 mgms. as the *exetose lethalis* become eminent. Acute nephritis almost always is accompanied by an increase of the urea nitrogen together with other nitrogenous substances. An increase may also be suggestive of intestinal obstruction.

Uric Acid.—Aside from nephritis when all nitrogenous ingredients are increased, the retention of uric acid in the blood is a typical finding in cases of gout. This sign alone may often differentiate from arthritis in which case the component is present in the normal amount. Uric acid is usually increased in cases of eclampsia.

Creatinin.—Any marked increase in this component indicates a very serious condition with a grave prognosis. In severe cases of diabetes the amount of Creatinin may reach 4 or 5 mgms. In uremic attack it may reach the alarming figures of 15 or 20 mgms. Such an increase usually precedes death but shortly.

Glucose.—While during renal diabetes, there is no increase of blood sugar or even decrease is not uncommon, in mild and severe forms of *diabetes mellitus*, the amount of this carbohydrate may reach over one gram. The author of this paper recalls a case in which glucose in blood was so high (approximately 1.5 grams) that a special strong standard was required to estimate the reading of colorimeter. Nephritic conditions may give but slight increase of glucose in the presence of marked increase of nitrogenous ingredients.

Cholesterol.—The decrease of the amount of this component is characteristic of pernicious anemia. An increase of this ingredient alone without increase of nitrogenous group, as N.P.N. and urea, should be considered as most suggestive of cholelithiasis. The cholesterol content can be increased also in cases of nephritis.

Alkali Reserve or CO₂ Combining Power

In Plasma.—The alkali reserve in the blood is markedly decreased in acidosis and may be as low as 10 per cent in the cases of diabetic or uremic coma. The amount of CO₂ is a very important factor for prognosis of these diseases. Very often under the action of carbonates medication the clinical picture of acidosis is not significant enough, but the amount of gas in plasma would be found below the normal.

Chlorides as NaCl.—Increase of chlorides is most often associated and is also a very characteristic symptom in eclampsia. In the terminal stages of nephritis one finds either increase or decrease. As logically as we could expect the amount of chlorides in blood is increased in the presence of oedematic conditions, and especially in Bright's disease.

Inorganic Phosphorus.—The most important condition which reduces the content of P in blood is rickets. Very often the decrease of P in blood may be detected in the absence of the typical clinical symptoms. The increase of this normal substance is found immediately after fracture occurs, and during the process of repair, and indicate a good union.

Calcium.—This is a very important compound, especially in the practice of pediatrics, as the decrease of Ca is always noted in the cases of infantile tetany.

INDICATIONS FOR CHEMICAL ANALYSIS OF BLOOD

As the increase of sugar in blood may be detected long before it appears in the urine or before it reaches the urinary threshold, every suspected diabetic should have a blood sugar determination even if the Benedict test in the urine is negative.

As an old fashioned Fehling's reagent, the Benedict's is used on exactly the same principle as that of the reduction of copper. Contrary to the general opinion, which considers this test as very dependable and as one which does not require a particular technic, obviously it is a very delicate test and even in the hands of the most experienced worker requires a careful attention in the interpretation of the results. Many factors which could not be checked during the routine laboratory procedure might interfere in the reaction giving absolutely erroneous interpretation. In the first place the preparation of the reagent requires the utmost care in the choice of the ingredients to be used. In no instances should an attempt be made to prepare this solution from the chemicals

of U.S.P. purity (from the drug store), as they contain the traces of the different reducing substances such as starch, etc. Only chemicals of C.P. purity with known analysis should be used in preparation of Benedict's reagent.

But even with all these precautions we can find many substances in the urine which could not be detected during routine analysis but which possess the reducing power and consequently might change the true reading. The phosphates with alkaline earth-metals are formed with the alkaline copper solution and gives a precipitation which can be interpreted as a positive reaction of the reduction of copper by the supposedly present glucose.

The glycouronates formed on the ingestion of certain drugs also possess strong reducing power. These drugs are: Chloral hydrate, camphor, menthol, thymol, antipyrine, etc. For all these reasons the final interpretation of the Benedict's test should be very careful and in doubtful cases not only repeated several times with specimens voided at different times, but checked also with the quantitative estimation of glucose in blood.

It is evident from previous discussion

that as soon as the amount of glucose in the blood is increased the determination of all nitrogenous components should be immediately undertaken in order to check the conditions of the kidneys.

In cases of nephritis, the chemical analysis of the blood is the only reliable data on prognosis and on efficiency of treatment. If the symptoms of Bright's disease are present, the determination of chlorides in blood will be of great assistance.

No scientific and conscientious treatment of diabetes or nephritis could possibly be done without frequent check of the amount of glucose and nitrogenous ingredients, not only in the urine, but in the blood as well.

Determination of uric acid in blood, aside from nephritic conditions may be of great value in the differential diagnosis of gout.

In cases of eclampsia or intestinal obstruction the chemical analysis of the blood is a very valuable factor in prognosis.

Surgeons will find in chemical analysis of blood, not only an aid in diagnosis, but often the analytical findings might

TABLE 2

| SUSPECTED OR EXISTED CONDITIONS. | THE NATURE OF REQUEST |
|---|--|
| Diabetes | At least every two weeks, or more often, complete chemical analysis of the blood. Twice each week, determination of Glucose in the blood. Every two days, determination of the amount of Glucose eliminated during 24 hours. |
| Pathological conditions of the Urinary tract. | Complete chemical analysis of the blood. Periodical determination of the nitrogenous ingredients. |
| Pregnancy | In the presence of toxic symptoms or of eclampsia, complete chemical analysis of the blood. |
| Gout | Chemical analysis of the blood with special request for Uric Acid. |
| Pernicious Anemia | Determination of Cholesterol in blood. |
| Disturbance of Endocrine System | Chemical analysis of the blood and Glucose tolerance test. |
| Fractures | Determination of Inorganic Phosphorus in blood. |
| Pre-Operative Care | Complete chemical analysis of the blood Imperative . |
| Intestinal Obstruction | Determination of Nitrogenous substances in blood. |
| Rickets or Tetany | Determination of Phosphorus and Calcium in blood. |
| Acute and chronic poisoning | Chemical analysis of the blood. |
| Cholelithiasis | Determination of Cholesterol in the blood. |

induce them to hasten, to postpone or even to cancel the surgical treatment. As the normal individual suffers a diminishing of the alkali reserve under general anesthesia, and during the post-operative stage, the danger is apparent in administering an anesthesia to a diabetic patient in whom this reserve may be diminished from the beginning. In the same danger is the patient with pathological condition of urinary tract. Cases showing urea between 20 or 30 mgms. should be operated upon with considerable precaution and if urea is above these figures (30 mgms.) preliminary treatment should include the measures to combat the conditions. In cases where only one kidney is involved (which could easily be diagnosed by P.S.P. test, as described below) the blood findings may be normal or slightly increased. After the nephrectomy is performed the blood constituents become immediately normal.

The obstetrician should bear in mind that the chemical analysis of the blood might be of great value in cases of toxemia or hyperemesis, as these conditions are accompanied by definite increase of nitrogenous components. In normal pregnancy these substances are usually diminished in amount.

No other diagnostic methods can give such accurate information as to the status of the cases of rickets or tetany as the blood analysis.

As the gallstones are, in the majority of the cases, composed of cholesterol, it would be natural to suspect cholelithiasis when the blood cholesterol content is increased.

As the general rule the chemical analysis of blood should be requested in cases of toxemia when these conditions cannot be explained by bacteriological study.

In conclusion of this chapter let us prepare a table indicating the nature of chemical analysis that should be requested under different conditions of tentative or presumptive diagnosis. (Table 2).

To complete this brief outline of chemical analysis of blood, we shall emphasize the great importance of correct collection of specimens and in a few words the technique for the same.

1. Only fasting specimens should be used, that is the blood should be collected from the patient early in the morning before breakfast, or at least 8 to 10 hours after repast.

2. Under usual aseptic precaution, about 8 to 10 cc. of blood are withdrawn from the vein of the arm.
3. Immediately after, the collected blood should be transferred from the syringe to a recipient containing small amount (about 20 mgms) of anticoagulant substance (oxalates or citrates).
4. Specimen should be sent to the laboratory immediately so as to be there not later than 12-24 hours after the blood was withdrawn.
5. Specimen of blood for determination of alkali reserve should be collected in the laboratory or at the bedside only by the trained technician.

FUNCTIONAL TESTS

The following tests are important for diagnostic purposes, as they indicate the functional conditions of the separate selected organ.

Test for Renal Efficiency, so-called P.-S.P. Test.—While the chemical analysis of the blood will denote immediately the disturbance of the kidneys, it will not indicate whether one or both kidneys are involved in the process. In such a case the P.S.P. test is not only valuable as a means of diagnosis but is most imperative. The test is a very simple one: the patient receives intravenously or subcutaneously one cubic centimeter (*exactly!*) of the indicator Phenolsulphonephthalein. The urine is collected separately from each kidney 10 minutes after intravenous injection or 70 minutes after subcutaneous; the second specimen is collected exactly 20 and 60 minutes respectively after the first. By colorimetric method the amount of the dye eliminated from each kidney is determined. Under a normal condition the output of the indicator should be 40 to 60 per cent at the end of collection of the first specimen and the total 60 to 80 per cent. Less valuable information regarding the function of kidneys could be obtained also by estimation of the amount of the dye in the voided urine at the same intervals. This test will denote the existing pathology of the kidney or kidneys, but will not indicate what kind of retention is being dealt with; for this reason the P.S.P. test and chemical analysis of the blood should complement each other.

Urea Concentration Test.—This is a very simple and reliable test for determination of degree of urea retention. The patient ingests an aqueous solution of urea. During the next two hours two specimens of urine are collected by voiding and the amount of urea in each is determined. Under normal conditions, the total output of urea during two hours should be about two per cent. Value less than one per cent indicates the existence of urea retention.

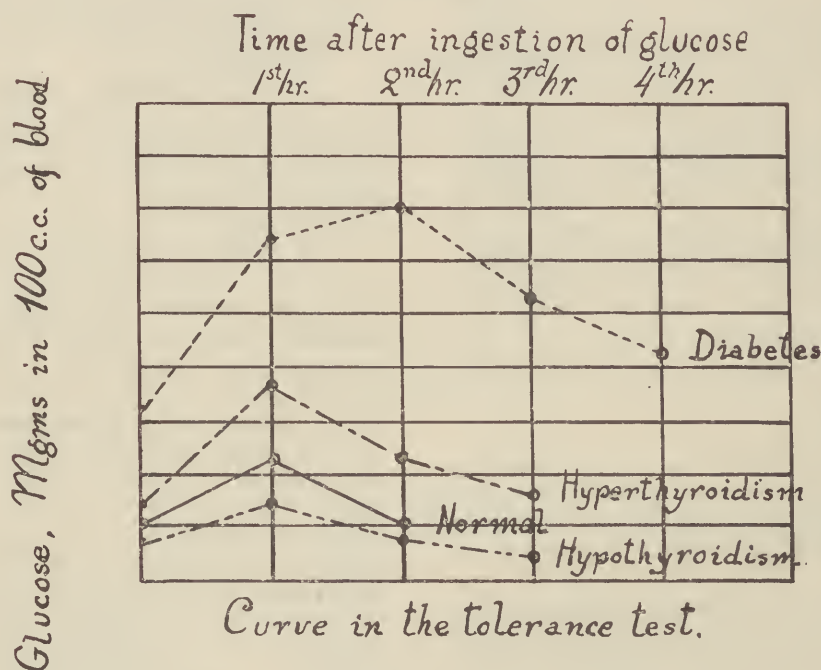
Glucose Tolerance Test.—This test is very important in the study of conditions where metabolism of carbohydrates is dis-

cose in milligrams per cubic centimeter of the blood.

In a few words we can describe the technic of the test: early in the morning, before breakfast, the specimen of blood and urine are collected. Patient receives a solution of 100 grams of C.P. anhydrous Dextrose. Every hour during the next four hours specimens of blood and urine are collected and the determination of glucose in each of them is made.

As these can be seen from the curve, under normal conditions the blood sugar should be normal at the end of second

TABLE 3.



From "Clinical Diagnosis by Laboratory Methods" by J. C. Tood and A. H. Sanford

turbed. Consequently this test is very valuable in the conditions which involve endocrine dysfunction. Hyperthyroidism shows marked hyperglycemia, while hypothyroidism reveals opposite conditions—hypoglycemia. The interpretation of this test would be easy if the data obtained from analysis would be reported in the form of a curve. (Table 3). The abscissae is divided into equal parts representing the hours in which the specimens are collected, considering the fasting period before ingestion of glucose as the zero hour; the ordinate represents the amount of glu-

hour and urinary sugar should disappear completely.

The diagnostic value of this test in diabetic conditions is not only of prime importance, but is self-evident and it is advisable as *sine qua non* condition that no case of diabetes should be dismissed from treatment and care unless the sugar tolerance curve is approaching to the normal.

Recently Dr. Henry J. John of Cleveland, Ohio, who is an authority in the matter of diabetes, pointed out the fact that

usual technic in the performance of sugar tolerance test is very uncomfortable to the patient as it requires five collections of blood specimens by the puncture of the vein, and he proposed to simplify the same. He gives to his patient a breakfast very rich in carbohydrates consisting of "half grapefruit, with sugar on it, oatmeal with a great deal of sugar and cream, pancakes with syrup, and coffee." Two and one half hours after this meal he collects a single specimen of the patient's blood and "even if he has a mild degree of diabetes his blood sugar two and one-half hours after such a meal will be at high level, whereas if he is not a diabetic, his sugar will still be within normal limit." By the means of this test Dr. John gives such a conclusion: "If the blood sugar two and one-half hours after such a meal is normal, then whether or not the patient has had sugar in the urine, one can rest assured that he is not a diabetic."

Liver Function Test.—This test was first described by Rosenthal in 1922 and is intended to check the function of this important organ. The technic of it is quite simple: Phenoltetrachlorphtalein or Bromsulphalein (by preference) is injected into the vein. Two specimens of blood are withdrawn from the other arm; first 5 minutes and second 30 minutes after injection of the dye. By colorimetric method an estimation of the dye remaining in the blood serum is made. Normally all dye should be eliminated from the circulation within 30 minutes. Obstruction of ducts will increase the time of elimination. In cases of pathology in the liver, Van den Bergh test (estimation of the bilirubin in blood serum) or even simple determination of Icterus Index could be also valuable although less so than Rosenthal's test.

DISCUSSION: *By Dr. I. A. Nelson, Tulsa.*

Dr. V. G. Isvekov has presented a paper in which he expressly brings to your minds a most convenient *summary* of those chemical constituents of the blood and those functional tests which we should keep in mind in dealing with many of our patients. He has also stated that he is interested in popularizing these procedures and make them as familiar to us as a white blood count for instance. This effort is necessary, in fact so necessary that at the annual American Medical Association meeting two excellent non-technical papers were read and published.

It occurs to me that one trouble with this phase of medicine is not that it is not useful nor essential. The biggest trouble with it is that it has to appeal to your minds in a strange language and indirectly. For example: so many clinicians have equipped themselves with X-ray machines for the most human reason that with it we can *see* and the patient thinks we can *see*. It matters not whether we see through a glass darkly and can prophesy only in part. We *see*. And the old Chinese saying that one look is worth a thousand words shows how long we have used this method. And there is no error in this as far as it goes. Even the chemical analysis of blood is almost altogether an ingenious manipulation of chemicals so minute traces of substances manifest themselves in degrees of color intense enough so we can see quantitative differences as distinct changes. We all like to *see*. However we are living in an age when the mind's eye should be exercised and we must permit the actinic light of scientific knowledge to penetrate and keep active the sensibilities for pathological colorings and shades.

When I hear a clinician say that "it costs so much" I know he has not yet learned to *see*. And right here I want to urge that in this discussion we should for once let our imagination go and keep quiet about the economics. It is not a paper to call for bickering, say for instance on one item Dr. Isvekov listed, namely that all surgical patients should have a complete blood chemistry. We should keep two thoughts uppermost. One is that certain procedures are available and necessary and second that we should familiarize ourselves with these.

In thinking about this discussion I decided not to dwell on the technical side. The results might end up somewhat like an incident which applies here. One of the Sisters in St. John's Hospital had a blood sister expecting a baby. She wanted to send an appropriate present so she crocheted a pair of pink and a pair of blue little baby shoes. Her sister had twins, one a boy and one a girl. The Grandmother was proud of the foresight displayed but the mother was dismayed and laid down the law "never do that again." So we will stick to the pink shoes of popularizing.

The older physicians have been taught to use the modern biologicals by aggressive, patient, but confident salesmen. You all have in your offices bottles to taste,

smell and see. It does no longer seem to me that functional and chemical procedures are mysteries which belong to the next generation. Your literature and your books are at your hand. The clinical pathologist is here to stay. He is or should be an investment to you as consultant. He will always be ahead of books in keeping you informed in new or modified procedures and indications, and, he is such a poor business man that he charges only for the actual test and none for consultation.

Maybe only 5 per cent of patients that come to the physician have true organic ailments, but it is on this 5 per cent that the physician shows his measure of scientific progress. The 95 per cent show his measure of personality, art and wisdom.

We feel infringed upon by the cults. They know the value of advertising the new—the mysterious. I know of a chiropractor who advertises herself as “biochemist,” physiotherapist, etc. One day she stopped at a clinical laboratory to find out if they analyzed whiskey for poisons, adding that she was a “biochemist” and specialized in regulating the chemical processes in the body.

Physicians might nourish that talent of the mind which we understand as “awareness.” Each case is individual but it has a bearing on medicine as a whole. How do we know what neighbor, legislator or preacher is going to suggest to our patient that some chiropractor will straighten up his or her chemical processes? It seems to me that by actual word or inference we should spike the guns of doubt and curiosity in our patients with the positive comfort that we know they either do or do not need special methods as “physiotherapy,” “X-ray,” “Chemical and Biological Tests,” “Psychotherapy,” etc. We believe firmly that the future will see the growth and development of scientific methods, but what are we doing to mold the form of such use. Are we going to let standardized routine under some Government system reduce such to a drudgery and rob us of the mental pleasure of being diagnosticians or are we going to show our children and the next generation that we saw and knew “what was good and made use of these chemical and functional tests.”

ACUTE GLANDULAR FEVER OF PFEIFFER

In an epidemic of the acute glandular fever of Pfeiffer reported on by Clara M. Davis, Chicago (Journal A. M. A., April 27, 1929), all the infants and one nursemaid in a small nursery were affected. There was wide variation in the severity of the cases, but all conformed closely to the description of Pfeiffer. Lymphocytosis appeared early in the incubation period. Relapses occurred in the usual large percentage of cases. Suppurative complications occurred only in infants with mixed infections. Recovery within four weeks, with a return of the glands to their preepidemic size and condition, was the rule.

EXCRETION OF LEAD

The studies described by Robert A. Kehoe and Frederick Thamann, Cincinnati (Journal A. M. A., April 27, 1929), have demonstrated that lead is being excreted in both the urine and the feces of normal persons, quite apart from industrial exposure to lead compounds. They show, further, that persons whose occupations involve some degree of contact with lead excrete somewhat larger quantities of lead as a general rule, while those for whom exposure to lead compounds constitutes a recognizable industrial hazard excrete still larger amounts. They selected: (a) Subjects with no occupational exposure to lead: Seventy-one medical students provided the subjects of this type. (b) Subjects with slight occupational exposure to lead: Seventy-two filling station handlers of commercial gasoline not containing lead (tetra-ethyl lead) were studied. (c) Subjects with a present exposure to recognized lead hazards. Ninety-seven subjects representing all the various degrees of dust exposure in two hazardous lead industries furnished the data for this portion of the study. A detailed and chronological occupational history was obtained on each subject. (A careful physical examination, urinalysis and blood examination were made, but these data are not considered in the discussion.) Not less than 2 liters of urine, and not less than a single large evacuation was requested of each subject. In analyzing the feces and urine they used certain modifications of the Fairhall method employed by them in 1926. They conclude that the appearance of lead in both the urine and the feces of students shows that some degree of lead absorption is “normal” for everybody.

THE ADAPTABILITY OF DEXTRI-MALTOSE TO THE SUCCESSFUL FEEDING OF INFANTS

For almost thirty years physicians have associated Dextri-Maltose with cow's milk and water formulae as being “the second thought after breast milk, “the first thought.”

Fresh cow's milk, however, is not the only artificial milk with which Dextri-Maltose may be successfully used. It is equally valuable for the modification of evaporated milk, dry and powdered milks, lactic acid milk and protein milk.

When the supply of fresh cow's milk is unsafe or scarce, and the physician finds it necessary to substitute evaporated milk, he will find “Dextri-Maltose with Vitamin B” particularly valuable because it compensates for the loss of vitamin B-1 during the process of evaporating milk.*

¹/₂United States Dept. of Agriculture, Circular No. 84, Page 4.

THE JOURNAL

OF THE

Oklahoma State Medical Association

Issued Monthly at Muskogee, Oklahoma, under direction of the Council.

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DR. CLAUDE A. THOMPSON.....Editor-in-Chief
Memorial Station, Muskogee, Okla.

DR. P. P. NESBITT.....Associate Editor
Medical Arts Building, Tulsa, Okla.

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This is the official Journal of the Oklahoma State Medical Association. All communications should be addressed to The Journal of the Oklahoma State Medical Association, Barnes Building, Muskogee, Oklahoma. \$4.00 per year; 40c per copy.

The editorial department is not responsible for the opinions expressed in the original articles of contributors.

Reprints of original articles will be supplied at actual cost, provided requests for them is attached to manuscripts or made in sufficient time before publication.

Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

COUNTY OFFICERS

It has almost become a habit of the Secretary to annually call the attention of our members and County Society officers to the timeliness and necessity of calling together an organization of the county societies, for its serious work during the next nine months.

This work always engages the attention of a few active, energetic men who lead in the execution of such scientific activities. Among these the president and secretary should be found, and they should see to it that plans and programs for the

future are immediately made and put into working order. Oklahoma now has many able and willing men who deem it a pleasure to visit county societies and pass on to the rank and file their conclusions and findings anent the many specialties in which they are intensely and enthusiastically interested. Likewise, in nearly every locality there will be found local men who are unusually able and highly informed along certain lines of work; these men often have a message worthwhile and know how to deliver it. They are valuable to the rest of the membership and should be called upon from time to time. Perhaps one of the best plans for well covering a given subject is the one calling for symposiums on certain conditions and diseases; these are divided up, and in such a manner that those highly worthwhile are well brought out and render more or less service to those who attend.

It should not be forgotten that it is the policy of medical organizations that county medical societies hold at least one business meeting during the year, at which time economic matters affecting the physician are brought up and discussed. Such a meeting at this particular time in our national state of affairs, which adversely affects all physicians, should be more than worthwhile.

It should be the immediate duty of all county officers to see to it that their societies are called together and plans made to make the work worthwhile.

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ECONOMIC ASPECTS AFFECTING THE PHYSICIAN

The United States is now passing through a prolonged and unusually wide spread period of depression. While it is hoped that the peak has been reached and there will be improvement, this is not certain by any means and it might be months before conditions change. One of the first persons affected, and affected longer than any other, is the physician. Everywhere people have grown into the habit, some of them paying the physician, if they can, some of them not paying him at all, unless they are compelled to. Many men are out of work or work irregularly, many people who have money are clutching it with a miserly hand and with the idea that these conditions will prevail always, which of course they will not.

The physician of all men, should not become panicky over the situation. The United States, per capita, is the richest country in the world. It is so rich that many luxuries have become a habit and necessity, rather than what they should be. Thousands of men still drive to their work in cars which a few years ago they would have thought impossible of owning. Wages over a long period have been high and men have grown into the habit of expecting it. Now, in many lines they must come down, but that does not alter the fact that the country basically is tremendously wealthy, that there are billions of dollars tied up for the time being, withdrawn from circulation and use or otherwise difficult of accessibility; these and other conditions, the heat, drouth, crop failures, lack of confidence, are all conditions that bring about an unusual situation. The doctor should remember that these conditions have existed before and that bad times will invariably succeed good times, but he should not become nervous and unduly apprehensive, and he will not do so if he sits steadily in the boat and functions as a cool, calm man.

It should not be forgotten that there never was a time when the patient has been found to be more in the slough of despond. No doubt allegations of malpractice will greatly increase, for it is well known that these are easily brought about by injudicious and untimely attempts to collect fees. The doctor should insist upon payment from those able and in position to pay, but he should not forget the adage about "getting blood out of a turnip." The doctor should give more personal attention to the business end of his work, if possible, then he has heretofore and he should not forget another adage "if a man attends to his work, his work will attend to him." The doctor should not forget that nothing, no situation or condition is ever entirely satisfactory, and our situation is never ideal and as we would have it.

So in this time of stress perhaps it will be best to consider the matter philosophically and remember that things have a habit of coming out right, or nearly so, in the end.

REPORT OF DELEGATES OF OKLAHOMA STATE MEDICAL ASSOCIATION TO DETROIT MEETING OF A. M. A. JUNE 23 TO 28, 1930.

Except to give account of our stewardship and stress some points in reports of transactions printed in Journal of A. M. A., this report would be unnecessary.

By reason of the rapid growth and development of the American Medical Association it now appears that it has outgrown our present quarters and that new quarters must be provided in the near future. When we consider that our officers published seven journals along with the A. M. A. Journal, Hygea and the American Medical Directory, we may more nearly visualize the scope and magnitude of their work and the facilities necessary for carrying on such an enterprise.

The gross earnings from Journal is now about one million five hundred thousand dollars with an operating expense of about one million dollars. After miscellaneous expenses were deducted the net income last year was \$226,461.00. So it now looks that absolute necessity will force the association to vacate its present inadequate quarters and build quarters in keeping with the dignity, growth and development of our association.

Your delegates were in accord with and supported a resolution looking with disfavor upon the policy of our government rendering aid to disabled veterans with nonservice connected disabilities.

A midyear meeting of the House of Delegates of the A. M. A., recommended by president-elect Gerry Morgan, was disposed of by the Reference committee on reports of officers by advising such exigency as now covered by provisions in our Constitution and By-laws.

A number of matters were considered in an executive session in which only delegates, officers, secretaries and presidents of component state associations were permitted to be present. Upon such matters as prescribing whiskey, in which Government regulates amount you may give, the Press cannot be trusted to report and state our true position.

In seeking to present any problems on resolution to the House of Delegates of the A. M. A., it is well that same be first carefully considered and discussed in our State House of Delegates. Therefore members of our State Association who are

making a study of medical problems and have matters they feel should be presented to the legislative body of the A.M.A., may bring them up before the House of Delegates of Oklahoma State Association or in manner less desirable take up with members of your A.M.A., Delegates. We are your Delegates and should like to serve you better.

Finally may we report that our contact in the House of Delegates of the A.M.A., inspires confidence in, and admiration for both the business and editorial staff of the A. M. Association.

W. ALBERT COOK
HORACE REED
MCLAIN ROGERS

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Editorial Notes—Personal and General

DR. AND MRS. W. ALBERT COOK, Tulsa, spent the summer at Battle Creek, Michigan.

DR. AND MRS. HALSELL FITE, Muskogee, are spending several weeks at Tampa, Florida.

DR. AND MRS. W. PAT FITE, Muskogee, have returned to their home after spending the Summer months in Minnesota.

DR. R. E. SAWYER, Durant, has returned from a four week's visit to the Mayo Clinic, Rochester, and Kellogg Clinic, Battle Creek.

DOCTORS A. W. WHITE, WENDEL LONG, and Lea A. Riely attended the British Medical Association in Winnipeg, Canada, August 25th to 29th.

DR. AND MRS. H. T. BALLANTINE, and children, Muskogee, spent several weeks in July and August, visiting points in Kentucky and Tennessee.

DR. J. O. LOWE, Tulsa, former Okmulgee physician, is slowly improving from an illness which has kept him in the hospital for more than two weeks.

DR. AND MRS. J. HUTCHINGS WHITE, Muskogee, visited Virginia during the summer and will conclude their vacation with a trip to the Northern Lakes.

DR. HERMAN FAGIN, Oklahoma City, announces the removal of his office from 712 Medical Arts Building to 304 Osler Building, 1200 North Walker.

DR. E. S. LAIN, Oklahoma City, who has made a prolonged visit to Europe, is spending much of the time at Stockholm. He will return to his work September 15th.

DRS. W. W. RUCKS, D. D. Paulus, and W. W. Rucks, Jr., of Oklahoma City, were on the program at the Lincoln County Medical Society meeting at Stroud, Wednesday evening, Sept. 3rd.

DR. E. ALBERT AISENSTADT, Medical Reserve, U. S. Army, of American Hospital, Picher, Okla., ordered for training with the 358th F. A., Ft. Sill, Okla., from August 31st to September 14th, 1930.

DR. AND MRS. A. L. McINNIS, Enid, sustained painful injuries when their automobile overturned, while returning from a vacation spent in Colorado. Dr. McInnis was rather seriously injured, but fortunately both will recover.

DOCTOR AND MRS. T. C. SANDERS, Shawnee, spent the last two weeks of August in Rochester, Minn., where Dr. Sanders attended the Clinic. Later they joined a group of Shawnee folk at Bimidgi, returning to Shawnee September 1st.

DR. AND MRS. E. S. FERGUSON and son Dr. Gordon Ferguson, Oklahoma City, left August 10th for Brainard and Gull Lake, Minn. Later they will visit Winnipeg, Canada, where both men will attend the British Medical Association convention, the last week in August.

DR. BENJAMIN J. DAVIS, Cushing, who with a large party of friends, has been visiting European points, has returned to his work. During his absence he visited England, Holland, Belgium, Germany, Switzerland, Italy and France. Spent some time at the hospitals in London and the clinics at Heidelberg and Munich. To make the matter irritating Dr. Davis reminds us that he enjoyed only two hot days while he was away. He says the Europeans are still backward, apparently they have not heard of the 18th amendment.

THE CENTRAL ASSOCIATION OF Obstetricians and Gynecologists meets Thursday, October 9th, in Kansas City, in conjunction with the Kansas City-Southwest Clinical Society. Members of the Association will cooperate in conducting clinics in the morning, while in the afternoon they will provide a symposium on Normal Labor. Dr. Fred L. Adair, Chicago, Management of Pregnancy; Dr. P. W. Toombs, Memphis, Management of the First and Second Stages of Labor; Dr. L. A. Clakins, Kansas City, Management of the Third Stage; Dr. Jennings C. Litzenberg, Minneapolis, Occiput Posterior; Dr. Fred J. Tausig, St. Louis, Breech Presentation; Dr. Rudolph W. Holmes, Chicago, Prolonged Labor; and Dr. G. D. Royston, St. Louis, Post-natal Care.

On Friday and Saturday mornings, October 10th and 11th, the Association will conduct scientific sessions at the Hotel Elms, Excelsior Springs, Missouri. Members of the profession are cordially invited to attend. Registration can be made at the Hotel—there will be no fee. Formal papers and case reports will feature the programs.

Excelsior Springs is only thirty miles from Kansas City, with good interurban and bus service, and with excellent roads for those who motor.

Physicians wishing programs of the Excelsior Springs meeting may address Dr. E. D. Plass, Secretary, University Hospital, Iowa City, Iowa.

DOCTOR CHARLES W. BALLAINE

Dr. C. W. Ballaine, pioneer physician of Cleveland Oklahoma, died suddenly at his home July 31, 1930.

He was born in Louisa County, Iowa, April 14, 1867. His early life was spent in Washington Territory; he attended Jenkins University, Spokane, and later entered the University Medical College at Kansas City, Mo.

In the fall of 1899 Dr. Ballaine came to Cleveland, Oklahoma, where he has practiced continuously since.

Dr. Ballaine is survived by his wife, three children, six brothers and two sisters.

DOCTOR J. ARTHUR MULLINS

Dr. J. A. Mullins, 50 year old Marlow physician, was found burned to death in his car, August 11th.

Born in Red Rock, Marion County, Iowa, July 22, 1880, Dr. Mullins attended public school and grew to early manhood in that community. In 1901 he accompanied his family to Quinlan, Oklahoma. In 1908, after one year spent in a medical school at Ft. Worth, Texas, he entered the University of Oklahoma, from which institution he was graduated in 1911. He married Miss Frances Ethel Clutter, in Oklahoma City, April 19, 1910. Following his graduation he practiced one year in Oklahoma City, then moved to Marlow where he has been since that time.

Dr. Mullins was a member of the Masonic Lodge, an active member and past President of the Rotary Club, and Worthy Patron of the Eastern Star.

Interment was in the Marlow cemetery, under the auspices of the Marlow Masonic lodge.

He is survived by his wife, a daughter and his father.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Exaeresis of the Phrenic Nerve in the Treatment of Pulmonary Tuberculosis. By Ray W. Matson, M.D. *The American Review of Tuberculosis*, July 1930.

It has been demonstrated that in fully 25 to 35 per cent of all persons anomalies of the phrenic nerve existed in the form of accessory fibres which usually join the main stem of the phrenic nerve just below the sternal end of the first rib, so that they continued to enervate the diaphragm. To interrupt impulses coming from accessory branches, Felix proposes an "exaeresis" of the

phrenic nerve after having cut it, by winding it around haemostatic forceps and withdrawing it.

The author has since 1924 operated upon more than 300 cases. The prenicus exaeresis of Felix was attempted in all cases, but when the section of nerve fibre evulsed measured less than 10 cm. the operation was converted into a radical phrenicotomy.

The author has never observed a return of function when the evulsed fibre measured 10 cm. or more. His experience tends to show if one evulses less than 10 cm. of nerve fibre and fails to sever accessory or communicating fibres, a return of diaphragmatic function can be expected in about 25 per cent of cases.

The beneficial influence of a satisfactory hemidiaphragmatic paralysis is manifest clinically in a marked reduction of the amount of expectoration, the rapid disappearance of fever, and a corresponding improvement in the general condition of the patient; appetite improves, weight increases, the fatigue subsides, the secondary anemia disappears and the patient looks and feels better.

The induction of hemidiaphragmatic paralysis is strongly recommended in all patients for whom a pneumothorax is indicated, and pleuritic adhesions prevent the introduction of gas, and as a preliminary to every thoracoplasty.

Effect of Irradiated Ergosterol on the Calcium Concentration of the Blood Serum in Pulmonary Tuberculosis. Jacob Kaminsky and Doris L. Davidson. *American Journal of Tuberculosis*, July 1930.

Rather striking effects on blood calcium have been noted following the oral administration of irradiated ergosterol. It has been noted that in cases with abnormally high blood calcium brought about by ingestion of this drug, the rise persisted for a considerable period after the irradiated ergosterol had been discontinued. It was thought it might be of interest to inquire into the effects of irradiated ergosterol on the serum-calcium concentration in pulmonary tuberculosis and note its influence on the course of the disease as may be revealed by clinical and roentgen-ray findings.

The author selected 10 men for preliminary study, their ages ranging from 17 to 30. Two preliminary serum-calcium determinations were done; the first reading was taken eight days and the second one two days before the first dose of the drug was administered. Blood was drawn from the arm, on a fasting stomach, and the serum-calcium determined.

Twenty drops of ergosterol were administered daily in one dose at 9 A. M. for seven days and another serum-calcium determination was done 22 hours after the last dose of the drug was given. There was a considerable rise of the serum-calcium concentration in the entire series, raising the average for the series from 9.38 to 12.08 mgm. per 100 cc. of blood-serum.

The Treatment of the "Early" Case of Tuberculosis. By Miles J. Breuer, *American Review of Tuberculosis*, July 1930.

The author discusses in a vivid and interesting manner the management of the "early" case of

pulmonary tuberculosis. He states that the outlook for a cure depends not only on the patient's pathological involvement, but on his mental equipment and on his economic resources, and of the special aptitude of the physician for treating this type of case. Patients must be treated as individual human problems and not as "cases of tuberculosis." The working out of the personal or human side of each case is quite as essential to recovery as is the medical side.

The author further stresses that in the present state of our knowledge, it would seem best never to discharge a case as cured, but to make the patient feel that he must remain indefinitely under observation and under the obligation of maintaining a constant effort to keep up the adjustment between his capacity and his environment.

BOOK REVIEWS

Tropical Medicine in the United States, By Alfred C. Reed, M. D., Professor of Tropical Medicine, The Pacific Institute of Tropical Medicine Within the George Williams Foundation for Medical Research of the University of California. 60 illustrations. Cloth \$6.00 J. B. Lippincott and Company, Philadelphia and London.

With the development and far flung overseas commerce of America and other national marine, with the opening of the Panama Canal and with the calling at our various ports of thousands of ships from everywhere, the United States, especially coastal part, is subject at all times to the possibility of various infections and diseases, not ordinarily seen by even busy American practitioners.

This volume considers especially those diseases more prevalent in hot climates, and not so often seen in this country. The work should prove of especial value to those physicians living on the sea board, southern states and the health officers.

Dietetics and Nutrition, By Maude A. Perry, B. S., formerly Director of Dietetics at the Michael Reese Hospital, Chicago, Illinois, and at the Montreal General Hospital, Montreal, Canada. Cloth \$2.50. C. V. Mosby Company, St. Louis.

This volume is a combination of the work taken from former articles and books written by the author. It is the consensus of opinion based upon these works and large practical experience and many years of experience in Institutional work.

Personal and Community Health, By Clair Elsmere Turner, M. A., Dr. P. H., Professor of Biology and Public Health in the Massachusetts Institute of Technology; formerly Associate Professor of Hygiene in the Tufts College Medical and Dental Schools; sometime member of the Administrative Board in the School of Public Health of Harvard University and the Massachusetts Institute of Technology; Fellow American Public Health Association; Major, Sanitary Corps, U. S. A. (Reserve). Third edition. Cloth, Price \$2.75. C. V. Mosby Company, St. Louis.

This is a practical work and will prove of value to health officers, educators and those interested in public health work.

Physical Diagnosis, By Richard C. Cabot, M. D., Professor of Clinical Medicine in Harvard University, formerly Chief of the West Medical Service at the Massachusetts General Hospital. Tenth edition, revised and enlarged, with 6 plates and 279 figures in the text. Cloth, \$5.00. William Wood Company, New York.

The diagnostic ability of Dr. Cabot, his leadership and pioneering in all matters calling for diagnostic acumen, are so well known that laudation is unnecessary in commenting upon his work. This book is made up from the practical things that Dr. Cabot has found worth while and of value in his own work.

Clinical Nutrition and Feeding in Infancy and Childhood, By I. Newton Kugelmass, M. D., Ph. D., Sc.D. Associate Attending Pediatrician, Fifth Avenue Hospital; Riverside Hospital; Pediatric Hospital for Ruptured and Crippled; Director, Heckscher Institute For Child Health. 37 illustrations. Cloth, \$6.00. J. B. Lippincott & Company, Philadelphia and London.

Feeding to fit the disease is largely becoming one of the fixed sciences and arts in medicine. Information on dietetics necessary in some form or other has become a necessity to every physician, regardless of his special type of work or inclinations.

This book is excellent in that it describes the constituents of foods, the necessity in their administration in certain conditions, the necessity for their abstinence in certain conditions, and the various values of each in kind.

Manuel of the Diseases of the Eye. For Students and General Practitioners, By Charles H. May, M. D., Director and Visiting Surgeon, Eye Service, Bellevue Hospital, New York, 1916 to 1926; Consulting Ophthalmologist to the Mt. Sinai Hospital, to the French Hospital, to the Italian Hospital, New York, and to the Monmouth Memorial Hospital; formerly Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department, Columbia University, New York. Thirteenth Edition, Revised. With 374 Original Illustrations, including 23 plates, with 73 colored figures. Cloth, \$4.00. William Wood and Company, New York, 1930.

This work is valuable to all physicians, especially busy practitioners, upon the diseases of the eye and it is especially suitable to those beginning the study of ophthalmology. The colored plates are remarkably fine and perfectly illustrate the normal and pathological conditions found upon examination.

Gonococcal Infection in the Male, By Abr. L. Wolbarst, M. D., Urologist and Director of Urologic Clinics, Beth Israel Hospital; Consulting Urologist, Central Islip State Hospital, Manhattan State Hospital, Jewish Memorial Hospital and Madison Park Hospital. Second edition, completely revised and enlarged with 140 illustrations, including 7 color plates. Cloth, \$5.50. C. V. Mosby Co., St. Louis.

Dr. Wolbarst, in his first edition, presented a very useful book to those charged with the treatment of gonococcal infections. This second edition has been thoroughly revised. The author believes that gonococcal infections must be considered a constitutional disease, which may be cured

by the inherent reparative forces of the individual, acting through the blood stream and that we may assist in the development of these natural resources or retard them by the unwise therapeutic measures. The illustrations in this book are very practical and fit the problems found by the physician.

A Medical Revue with a Prologue and a Good Many Scenes, By Morris Fishbein, M. D., Editor

of the Journal of the American Medical Association and of Hygeia, the Health Magazine. With illustrations by Dan Layman. Price, \$1.00. The Bobbs-Merrill Company, Indianapolis.

This little volume is full of laughs of and about the doctor. No one in the country is better fitted than Dr. Fishbein to point out the fallacies, weakness and virtues of the doctor in the many roles he assumes.

REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

OKLAHOMA STATE BOARD OF MEDICAL EXAMINERS

Examination held at State Capitol, Oklahoma City, June 10th and 11th, 1930.
The following applicants passed.

| Name | Year of Birth | Place of Birth | School of Graduation | Year of Graduation | Home Address or Previous Location |
|-----------------------------|---------------|-------------------|----------------------|--------------------|-----------------------------------|
| Abiclarde, Jose F. | 1898 | P. I. | Univ. of Okla. | 1930 | Oklahoma City. |
| Abernethy, Alton Coy | 1903 | Oklahoma | Univ. of Okla. | 1930 | Oklahoma City. |
| Arrington, Carl, Thos. | 1897 | Arkansas | Univ. of Okla. | 1930 | Oklahoma City. |
| Allgood, Elvus J. | 1900 | Louisiana | Univ. of Okla. | 1930 | Oklahoma City. |
| Bulla, Gordon G. | 1904 | Oklahoma | Univ. of Okla. | 1930 | Oklahoma City. |
| Braun, Jacob Peter | 1905 | Mulhall, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Baugh, Harold Timberlake | | Clifton, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Bohannon, Jas. Raymond | 1899 | Kentucky | Univ. of Ark. | 1930 | Oklahoma City. |
| Brewer, Kenneth A. | 1907 | Norman, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Brown, Gerster Win. | 1903 | Lonegrove, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Bassett, Clifford Monroe | 1904 | Missouri | Univ. of Okla. | 1930 | Oklahoma City. |
| Bartell, Jack Orvis | 1901 | Okla. City, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Copeland, Edwin King | 1899 | Tennessee | Univ. of Okla. | 1930 | Oklahoma City. |
| Cole, Orville Wilbur | 1908 | Hollis, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Crawford, Gwen Whelpley | 1907 | Bay, Ark. | Univ. of Ark. | 1930 | Dewey, Okla. |
| Darrrough, John Walton | 1904 | Vinita, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Eberhart, Marjorie G. | 1904 | Ft. Smith, Ark. | Univ. of Okla. | 1930 | Oklahoma City. |
| Evans, Alfred M. | 1902 | California | Univ. of Okla. | 1930 | Oklahoma City. |
| Edes, Dee W. | 1906 | Piedmont, Okla. | Univ. of Okla. | 1930 | El Reno, Okla. |
| Fox, Fred T. | 1904 | Kansas | Univ. of Okla. | 1930 | Oklahoma City. |
| Hood, Frederick Redding | 1900 | Oklahoma | Univ. of Okla. | 1930 | Oklahoma City. |
| Hoshall, F. Adelbert | | Norman, Okla. | Univ. of Okla. | 1930 | Norman, Okla. |
| Hilbig, Albert L. | 1901 | Kansas | Univ. of Okla. | 1930 | Oklahoma City. |
| Irby, Addison Craft | 1905 | Mississippi | Northwestern | 1928 | Oklahoma City. |
| Jeffress, Vinnie Hale | 1903 | Roff, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Jackson, Alvin Ross | 1897 | Texas | Univ. of Okla. | 1930 | Oklahoma City. |
| Keltz, Bert F. | 1904 | Iowa | Univ. of Iowa | 1930 | Oklahoma City. |
| Long, Ray Hubert | 1904 | Rokey, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| LeHew, Elton Wilmot | 1904 | Pawnee, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| McKinney, Milam F. | 1904 | Mangum, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Mulvey, Bert E. | 1906 | Yukon, Okla. | Univ. of Okla. | 1930 | Yukon, Okla. |
| Murray, E. Coter | 1903 | Marceline, Mo. | Univ. of Okla. | 1930 | Oklahoma City. |
| Martin, John William | 1906 | Valliant, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Nichols, Ray Ernest | 1901 | Indiana | Univ. of Okla. | 1930 | Oklahoma City. |
| Neumann, Milton A. | 1907 | Guthrie, Okla. | Univ. of Okla. | 1930 | Oklahoma City. |
| Nelson, Henry John | 1898 | Iowa | Univ. of Okla. | 1930 | Oklahoma City. |
| O'Donnell, Bernard Joseph | 1903 | Iowa | Univ. of Iowa | 1929 | Tulsa, Okla. |
| Payte, James Ira | 1896 | Texas | Univ. of Iowa | 1930 | Oklahoma City. |
| Pendergrass, Clayton Ira | | Ceres, Calif. | Univ. of Okla. | 1930 | Oklahoma City. |
| Purviance, Carlton C. | 1904 | Texas | Univ. of Okla. | 1930 | Oklahoma City. |
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TOXIC GOITER*

LEROY DOWNING LONG, M.D.
OKLAHOMA CITY

Types: We see hyperthyroidism clinically associated with two apparently different kinds of goiter. These are:

1. Exophthalmic goiter—Grave's or Basedow's disease—primary hyperthyroidism.
2. Adenoma with hyperthyroidism—toxic adenoma—toxic nodular goiter.

While these types of goiter have for a long time been considered different, there has in recent years developed a school which considers that adenoma in its essential nature may be considered as a form of hyperplasia, similar to primary hyperthyroidism, but different only in that it involves islands in the gland, instead of the entire gland.

Primary Hyperthyroidism: Primary hyperthyroidism (exophthalmic goiter) is insidious in onset, and there may never be exophthalmos. It usually occurs in the third decade, but it may be earlier. There is one authenticated case in a girl of 3½ years who was operated upon and made a good recovery.²

As a rule fatigue is the first symptom. Then comes irritability, lack of emotional control, palpitation of the heart, sensitivity to heat, profuse perspiration, loss of weight despite unusually good appetite, tremor, and, later, diarrhea.

The patient is willing to work but he cannot work, wherein he differs from the neurasthenic.

All these things may be present without exophthalmos or noticeable enlargement of the gland. The enlargement when present is usually symmetrical. The bulging of the eyes may be pronounced in one eye. Excessive bulging may lead to loss of vision.

*Read before the Surgical Section of the Oklahoma State Medical Association, Annual Meeting, at Shawnee, May 28, 1930.

The disease characteristically has remissions and exacerbations.

Allowed to pursue its course without treatment, or with any form of treatment which does not include surgery, there will eventually be increasing toxicity, as evidenced by a rising pulse rate, increased excitability, lessened emotional control, and over-activation.

Crisis: The actual crisis usually is ushered in by diarrhea and vomiting. The pulse rises to 200; there is extreme listlessness, flushed face, sweating, fever and delirium. The delirium alternates with a semi-comatose state until death occurs.

The indicated treatment in an impending crisis is: Morphine, iodine, fluids and glucose; and, if improvement is sufficient, operation (probably hemithyroidectomy) at the earliest possible moment. In about six weeks the other lobe may be operated upon.

"In well regulated thyroid services there will now be as many deaths from inoperable thyroid patients in crisis as from all operations done during the year for primary hyperthyroidism, adenomata, malignancy, and substernal goiter."²

While many general practitioners will in their entire experience see only one or two crises, we wish to say that this desperate condition is not rare.

The following passage is from an editorial in the New England Journal of Medicine:

"It is somewhat surprising that in modern days when the operation for exophthalmic goiter has been so perfected as to carry with it but a slight danger to life, when the preoperative treatment, perfected methods of anesthesia, etc., have made the procedure so safe, that a considerable number of patients are allowed to progress to a stage where the presence of a thyroid crisis may make operation so extremely dangerous as to be unwise or impossible. The answer to this condition must be the unfamiliarity with thyroid disease of many practitioners, and an undue confidence in the so-called palliative methods of treatment."³

Adenoma or Nodular Goiter: Adeno-

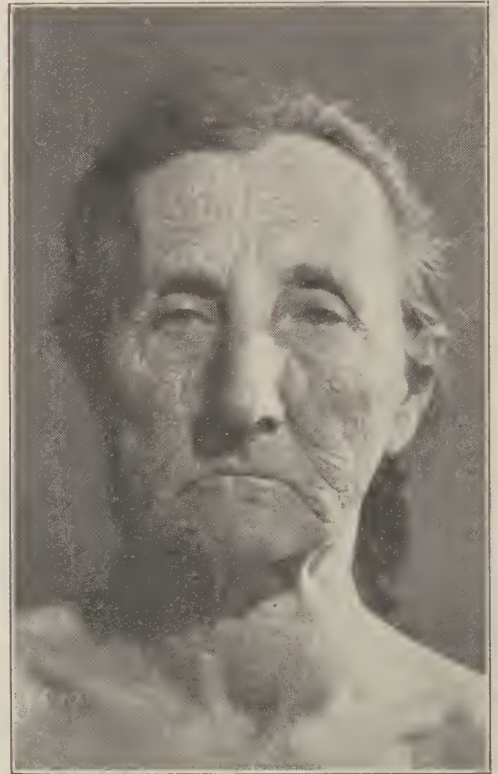
mata may be cystic. Every cyst of the thyroid gland which we have removed has had its origin in a degenerating or liquifying adenoma. Adenoma may be present for many years without disturbance to the patient in any way except for disfiguration. However, it is our belief that all nodular goiters should be removed because:

1. The danger of their becoming toxic—that is hyperthyroidism may occur.
2. The danger of malignant change. On the basis of vessel ingrowth, as demonstrated by Allen Graham of Cleveland, about 6% of adenomata show malignant change.
3. They are apt to become intrathoracic.
4. They lead often to heart changes. Most "thyrocardiacs" are subjects of long standing toxic adenomata.

Operability: The weight, strength, condition of the heart, and the basal metabolic rate are the criteria as to operability.

In recent years, particularly because of the work of Lahey, the thyrocardiac has

become less of a "bugbear." "Nowhere in thyroid surgery can one see such startlingly gratifying results as in these people with heart failure complicated by hyperthyroidism—once the toxicity has been removed by subtotal thyroidectomy."² We



Long standing cyst adenoma, partly retrosternal, with pressure symptoms (note deviation of trachea to right) and toxic symptoms.

After operation complete relief. The trachea returned to midline.



Classical exophthalmic goiter. Eight months post operative. Entirely well. B. M. R. plus 6. But exophthalmos persists.

have had patients who were brought to the hospital in a wheel chair with dyspnoea, oedema, cyanosis and fibrillation, walk out of the hospital four weeks after operation with restored compensation and a perfectly regular heart rhythm. Of course, they require careful and intelligent management as to preoperative care, dexterity and speed in operating, proper anesthesia, and wise post-operative care. It requires courage to approach these cases, but we are fortified by the fact that the cardiac reserve in the "thyroid heart" is greater than in the heart which is decompensated from other cause.

In diabetes and tuberculosis complicated by hyperthyroidism, subtotal thyroidectomy is indicated, and, if done properly will make it possible to institute medical treatment for these diseases which may be

successful. Efforts to satisfactorily handle these patients without removal of the hyperthyroidism are fruitless. The mortality of the operation here is raised from the usual less than 1% to about 6%.²

Operation of Choice: In toxic goiter, we believe that the removal of approximately 80% of the entire gland, including both lobes and the isthmus is the procedure of choice. Sometimes, even now, because of extreme toxicity, it is necessary to do this in stages. We have not entirely abandoned preliminary ligation, but the operative reaction in these cases has shown us that hemithyroidectomy could probably have been safely done. In our opinion, subtotal thyroidectomy (which in our hands has been devoid of serious complications) is preferable to the more radical operations advised by some (Richter and others) which is apt to cause injury to the parathyroids and recurrent laryngeal nerves, and is, we believe, no more effective in preventing recurrent or persistent hyperthyroidism.⁴ We would prefer to re-operate upon an occasional case rather than to

adopt the radical operation as a routine procedure.

Iodine: The recent repopularization of iodine therapy in goiter has caused a definite change in the condition of thyroid cases admitted to our clinic.

For a long time it has been known that hyperplastic thyroid gland is deficient in iodine. In 1922 Plummer caused renewed interest in the administration of this drug. Since then it has been given so extensively, and, in many instances, with such little discretion that we deem it expedient to urge more rational use of this most important agent in the management of thyroid disease. Our experience corresponds with that of Lahey of Boston, and Frazier of Philadelphia, both of whom have recently written excellent articles dealing with this phase of goiter therapy. Dr. Lahey says:

"The use of iodine has been so enthusiastically accepted by the medical profession that any patient who has goiter, thinks she has goiter, or may have had goiter, has had what used to be called a 'course of iodine'."

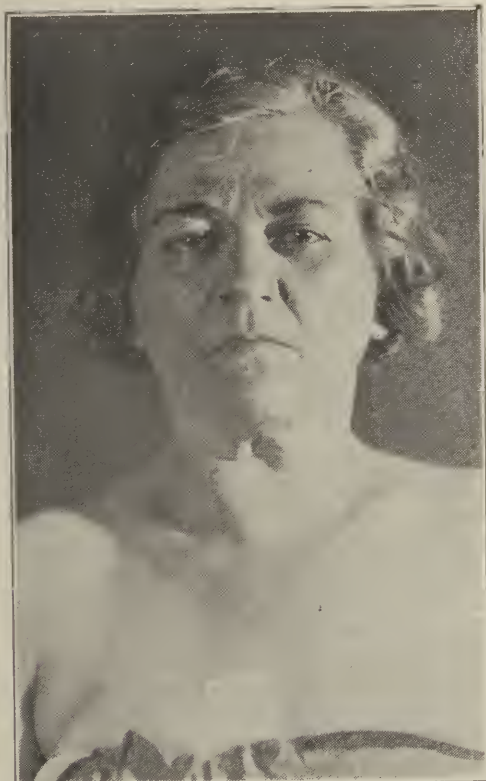
Frazier makes the statement that "iodine, while one of our most valuable adjuncts in the surgical management of hyperthyroidism, has probably done more harm to patients with goiter than any other drug."

In connection with the treatment of goiter, iodine has two legitimate uses:

1. The prevention of endemic goiter in "goiter belts."
2. The temporary reduction of toxicity in hyperplasia of the thyroid gland preparatory to and following operation. Fortunately, Oklahoma is not in a "goiter belt."

In toxic goiter the most that can be expected of iodine is to hasten a remission. Its effect is transient. After the first 10 or 12 days it often does no good, and may do harm. The good results of a first administration cannot be duplicated if operation is put off. The drug should not be given until after the surgeon has seen the patient. Otherwise, apparent improvement under iodine may cause ill-advised radicalism.

Iodine should not be given to neurasthenics. "The great difficulty of diagnosing the co-existence of thyroidism with a neurotic or psychic condition is greatly added to if the patient has been receiving Lugol's Solution."



Adenoma of 10 years' duration. "Heart trouble" for past 5 years. B. M. R. plus 35, auricular fibrillation and evident toxicity.

Heart rhythm became regular 3 days after operation and has remained so ever since (6 weeks) with great improvement in general health.

Close preoperative observation of toxic patients is still necessary, and the administration of iodine by the medical attendant before the patient is seen by the surgeon causes confusion and creates false security in the estimation of operability. We sometimes send patients home without iodine for several weeks so that a clear idea may be obtained of their true condition. Those who receive iodine over a long period of time (and who improve for the first 10 to 12 days) show less improvement as the drug is continued; and, when it is most urgently needed it will have little effect. If it has been given only after coming under the observation of the surgeon and not to exceed 8 to 12 days preoperative, the sustaining influence following operation may save life.

The only permanent cure for toxic goiter lies in surgery. Iodine alone will not effect a permanent cure, and it should not be given for this purpose.

714 Medical Arts Building.

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STRICTURE OF THE RECTUM*

V. K. ALLEN, M.D.
TULSA

It is interesting to note in reviewing the subject of stricture of the rectum that much more discussion is spent on the etiology than on any other phase of the subject. This paper, however, although covering all phases of the subject, is intended to lay more stress on treatment than on etiology. It is readily admitted that the etiology may be divided into malignant and benign. Benign strictures are of an inflammatory nature, but the significance of syphilis as a causative factor opens a discussion in which there is a wide vari-

ance of opinion. Some believe that practically all inflammatory strictures are of luetic origin, while there are others who believe that very few or none are caused by syphilis. Yoeman¹, Asman², Hartman³, Gant⁴, and others express themselves as believing that a large percentage of the benign strictures are caused by syphilis. Drueck⁵ thinks that this frequency of syphilis in patients suffering from strictures of the rectum is universally acknowledged." On the other hand, Lockhart Mummery⁶ feels that the fact that the patient has syphilis is no proof that the stricture which the patient may have is caused by syphilis. He further states, "I doubt whether a stricture of the rectum ever occurs from syphilis alone and without ulceration." David⁷ states that out of fifteen studied cases, he has rarely seen microscopical changes in the tissues to suggest that syphilis is a causative factor.

Benign stricture may be divided into congenital and acquired. Congenital strictures are rarely recognized in early life, and it is only after the development of hemorrhoids, fissures, or fistulas that a doctor is consulted and he finds this stricture. At this age these strictures are usually very dense and difficult to dilate.

Gonorrheal proctitis may occur in the rectum of females or in the males practicing sodomy, and these ulcerations may lead to very severe strictures of the rectum.

When tuberculous strictures do occur, and this is not often, there is usually an associated diarrhea and the stricture is secondary to pulmonary disease. Usually, with the tuberculous stricture, there is quite an involvement of the entire gastro-intestinal tract before the tissues of the rectum and anus become involved.

Amoebic dysentery is given by many writers as a not infrequent cause. Strictures from this infection may be single or multiple and are more often high than low. They result from the large ulceration which frequently takes place in a severe chronic case of this disease.

Trauma is a rather frequent cause which may include hot or caustic enemas, introduction of foreign bodies, and surgery. Hemorrhoidectomies are occasionally followed by strictures, and especially is this true where the Whitehead operation is done. A case now under observation in which the stricture is located just below the sigmoid flexure and involves

*Read before the Surgical Section of the Oklahoma State Medical Association Annual Meeting, at Shawnee, May 28, 1930.

about half of the circumference of the bowel, is the result of the removal of a small malignant growth by fulguration followed by the application of radium.

Strictures occur far more frequently in females than in males, the proportion being probably better than two to one. Although the strictures may occur at all ages, the vast majority occur between the ages of 21 and 40, and less frequently during the following two decades.

There are several types of the stenoses, viz: (a) Annular, the type which is like a ring about the rectum; (b) The tubular, in which case from one to several inches of the rectum may be involved in its entire circumference, and in all its coats; (c) The linear type where a cicatricial or fibrous deposit invades but part of the circumference; (d) Still another type is the so-called valvular stricture which is the hypertrophied Houston's valve interfering with passing of the feces.

The majority of the strictures occur in the lower part of the rectum, the lowest 3 to 3½ inches. Although the fibrous transformation involves all the tunics, the greatest part involves the submucosa with a very intimate attachment of the mucosa, while only the inner fibers of the muscularis are involved. Ulceration rarely occurs at the stricture itself, but usually just above that point. After the stricture becomes more advanced a ballooning above the point of obstruction gradually develops as a consequence of a constant effort to overcome such obstruction.

One of the earliest symptoms may be that of ulceration of the rectum with some moisture about the anus or discharge of mucus. Later there is noticed a heaviness or dragging sensation in the loins or perineum. There may be an aching down one or both legs. Vague pains in the pelvis or pain in the region of the uterus or adnexa are complained of. As the stricture develops, the patient notices blood in the stool and the bowels may move three to five times a day. Pus may be mixed with the blood and pain may develop in the later stage but is due rather to the fistula which frequently complicates the picture. There is loss of weight and anemia. Constipation becomes more and more marked, and impaction of feces occurs above the stenosis. The feces are ribbon shaped, and there is much gas in the colon. The stomach becomes irritable, and the patient experiences frequent nausea.

Obstruction never occurs from the stricture alone because the lumen is never completely obliterated, but rather as a result of impaction of feces. Fistulae are probably the most frequent complication of stricture. The fistula may extend to the ischiorectal spaces or skin, or may open into the bladder or vagina.

As previously stated, this paper is intended to lay stress particularly on treatment. In the treatment of these cases, the patient should be placed upon a very bland diet. The elimination of meat will lessen the amount of putrefaction; and if foods are chosen so as to eliminate the roughage or waste products, the stools will be more easily passed and there will be less impaction above the stricture. Cleanliness is a necessity and frequent irrigations will make the patient much more comfortable and will not permit retained discharges to further irritate the diseased area and outside skin. Intestinal elimination should be encouraged in every way possible, and the patient's general condition should be built up by tonics. Antiluetic medication should be given if indicated. Dilatation is one of the most frequent palliative measures used; however, much caution should be observed in this. Only the soft bougie should be used because the stricture may be split if too much force is made, thus allowing septic material to reach the cellular tissue outside of the bowel and lead to formation of abscess and even septicemia. The greatest danger is encountered in those cases where the stricture is situated above the peritoneal floor, because of the possibility of a complicating peritonitis.

Electrolysis has been used in the treatment of strictures with some success. The technique used should vary according to the type of stricture to be treated. The stricture may be treated by a graduated electrode, choosing first one that will hardly pass through the stricture. Then by exerting enough force to hold the electrode in position and at the same time using a dosage of negative galvanism up to the tolerance of the patient, the tissue will gradually relax allowing the electrode to pass through. Larger electrodes are used as indicated. A current of 3 to 15 milliamperes is used, which may be given from 5 to 15 minutes depending upon the individual and the character of stricture. These treatments may be given five to ten days apart or as often as the condition of the patient will allow. Intervening dilatations without the current are of value.

If it is the object of the treatment to dissolve scar tissue, two or three techniques may be used. The negative pole alone on a metallic contact may be used. If inflammation is present, it is advisable to use the positive pole with a wet electrode of thiosinamin ($C_4H_8N_2S$). Thiosinamin has the property of attacking scar tissue to the exclusion of the tissue surrounding it and may be used on the positive pole rather than the negative pole. Milliamperage used in these cases would depend upon the dosage or tolerance allowable by the patient. In some cases it may be advisable to use a topical application of some local anesthesia in order that heavier dosage may be used.

The ionization of sodium salicylate on the negative pole is also of value and may be used safely. It is impossible to lay down hard and fast rules as to the dosage of current to be used or as to the frequency of treatment. It all depends upon the case to be treated. Where solutions of thiosinamin or sodium salicylate are used, a very dilute solution of one-half to three per cent may be applied by soaking lint or cotton in this solution and using the cotton or lint as the electrode, placing it in position when wanted.

The following case history illustrates this point well. M.M., female, age 28 years, chief complaint discomfort in the rectum with purulent discharge from the rectum and associated with marked constipation. Family history is negative. Previous history is negative. She has had three Wassermanns, all negative.

Past Illnesses: At the age of 13 (15 years ago) she fell, injuring the lower part of back and rectum. She was in bed for three or four weeks. About one year later she noticed that she was more constipated and had some discomfort in rectum, and she passed some mucus at times. Since that time her constipation has grown more marked each year and gradually the rectal discomfort has grown worse. She has noticed mucus, pus, and blood in stools more frequently and the fecal matter has formed into smaller, stringy stools. She has also considerable discomfort in the left side of the abdomen and feels bad all the time.

Physical Examination: There is a stricture of the rectum beginning about one inch above sphincter, about one inch in length, tubular in character, and the lumen of which will just permit the passage of

the index finger. The discharge is mucopurulent and blood tinged.

Treatment: She was given a bland diet and was directed to keep rectum irrigated well with medicated enemas, and she was given a treatment with the galvanic current every ten days for about three months. After this time, the treatments were repeated every two weeks for two months, and then once a month for three months more. At that time, the patient was having a very well formed stool; and no pus or blood and very little mucus was found in the stool. She had very little discomfort in the rectum and had gained weight. Not enough time has elapsed as yet to say how permanent this improvement may be.

Clemons^{*}, of Los Angeles, has reported excellent results by the use of carbon dioxide in the treatment of strictures. He packs the stricture with a tampon of carbon dioxide snow. This is accomplished by catching the gas in a chamois as it escapes from the tank and then packing the snow into a finger cot. A thread is tied around the end of the finger cot placed over the projection of a retaining catheter in such a manner as to allow the escape of gas from the melting snow through the catheter. This is inserted into position by means of a proctoscope.

A more radical procedure in the treatment of strictures is the use of proctotomy. The proctotomy may be internal or external. The former is dangerous because the wounds are inside and cannot drain well and therefore predispose to abscess. The latter is quickly done and markedly enlarges the stenosed rectum, allowing free drainage. These are easily treated and better results are obtained.

Excision is resorted to in the more severe cases. This is usually preceded by a colostomy which improves elimination and builds up the general condition of the patient. Excision is not easily done, however, because the dense adhesions that bind the bowel on all sides to adjacent structures completely immobilize the gut. The extirpation is therefore difficult and is accompanied by profuse bleeding and is occasionally accompanied by injury to the bladder, ureter, prostate, urethra, or vaginal septum.

The following is a case report of stricture of the rectum which came under my care and which proved to be unusually interesting. The case is that of Mrs. E. C.,

white, female, age 33. Her chief complaint is straining at stool especially in the mornings. Purgatives continuously and passing blood at or after stool.

History of Present Illness: In 1910 she became rather constipated and her bowels were sore. She noticed quite a bit of discomfort at times in the rectum. This continued until 1915 when she had a large swollen area in the left buttock. This was incised and drained, but it failed to heal. The discharge continued, and the soreness in and about the rectum became worse. The soreness passed anteriorly and a mass formed in the vagina which finally ruptured and drained. Four years ago she had an abscess again in the left buttock and both knees were swollen very large. The abscess was incised and the knife was passed into the rectum. Pus drained through the rectum continuously. Her bowels moved only with purgatives and straining a great deal with each stool was a symptom. She had a great deal of discomfort in and about the rectum and in the abdomen. She had lost 35 or 40 pounds in the last year and a half.

Physical Findings: Undernourished, adult, female. Head is negative except for several bad teeth which are very dirty because of tobacco chewing. The heart and lungs are negative. The abdomen is rather pendulous in the lower part and is tender over the cecum and over the descending colon.

Pelvic Examination: The examining finger feels a depressed area with a very small opening about middle of the posterior wall of the vagina which when probed is easily found to lead into the rectum. The examining finger passed into the vagina in a bimanual examination and reveals a very tight and tender pelvis. She resists examination considerably, but one finds a hard mass which seems to correspond with the fundus of the uterus.

Rectal Examination: A fistulous tract leads from the posterior median line of the anus to the left cheek of the buttock, and several openings are noticed in the buttock. The examining finger meets with an obstruction, circular in character, just within the sphincter muscle; and pressure upon this point elicits considerable pain with the patient. The stricture is hard and fibrous and it is impossible to pass the finger into the stricture. A diagnosis of stricture of the rectum complicated by a fistula was made. In as much as the fis-

tula was the thing most complained of, it was decided that the latter be removed at this time and a more thorough examination of the stricture be made.

Under anesthesia, a grooved director was passed through the opening in the left cheek of the buttock and passed through the fistulous tract into the anus. This fistulous tract was then excised completely, including all of the diseased area in the buttock. The recto-vaginal fistula was determined to be inactive and was therefore not taken care of at this time. The finger was passed into the rectum through the stricture which was forcibly dilated to admit the finger to be passed its full length and approximate up to the sigmoid flexure. It was determined at this time that the stricture was so marked and extended so high in the rectum that palliative treatment would never be satisfactory. It was therefore decided that colostomy would be required for proper elimination and to relieve the strictured area sufficiently to permit clearing of the infection.

About ten days later she again was taken to surgery and at this time a right paramedian incision was made. After the intestines were packed into the upper abdomen, it was found that the uterus was about three or four times the normal size and was fibrous. The tubes and ovaries were bound down by strong adhesions as well as the intestines which filled the posterior culdesac. The sigmoid was a mass of adhesions and was also held to the left pelvic wall by fibrous bands. The adhesions were broken up as much as possible in the culdesac, the uterus and tubes were liberated, and a hysterectomy was done. The upper part of the sigmoid and part of the descending colon were then loosened so as to permit a colostomy to be made through the left rectus muscle. The rectal stricture was then irrigated three or four times a day with normal saline, and the operative area on the buttock soon began to take on a more healthy appearance. Cleansing was continued from above and from below several times a day, and the discharge from the rectum gradually diminished. The bowels began to move better, and the improved elimination soon lessened the abdominal discomfort that she had been having. She gained considerable weight and improved in her general condition. She was kept under observation for about ten weeks after the last operation was done, and until that time

she had kept up her irrigations consistently. The wound on the outside was entirely healed and looked healthy. The discharge from the rectum was very small and gave very little trouble. She left town at this time and was lost track of entirely.

DISCUSSION: *Dr. Raymond L. Murdoch, Oklahoma City.*

Young adult or middle aged women are chiefly the subjects of inflammatory stricture of the rectum. Dispensary cases are overwhelmingly negro women. In a number of these relating complaints of rectal pain and muco-purulent discharge, obstinate constipation, and great pain on attempt to take over a few ounces as an enema, I have felt sure they had a stricture and have found that condition on examination.

The greater occurrence of non-malignant rectal stricture in women can be explained by the greater trauma and infection to which this region is subject in women. Infected vaginal discharges frequently contaminate the region. At this point it might be well to say that although the making of a rectal examination by the physician after a bimanual vaginal examination is highly commendable, still, respect for the rectum would require that the gloved hand be washed and immersed in antiseptic solution between the two examinations.

About eighty-five per cent of my cases have had negative Wassermanns when I saw them and the Wassermanns in the remainder were usually only faintly positive. Antiluetic treatment alone did not cause absorption of the stricture in any of them. However previous venereal disease of some kind at some time was probable in most of them.

Most of the cases present themselves in the *late* or obstructive stage, the fibrous stricture about three inches up obliterating the mid-ampulla of the rectum, the sphincters themselves being atonic. The stenosed or scarred anus following unfortunate hemorrhoid operations is a different condition. In the obliterative stage of the inflammatory stricture the opening admits the tip of the finger or it may be only pencil point in size. It is remarkable how small an opening some of the cases get along with. I have thought from vaginal palpation posteriorly that I had a tubular stricture in some cases in which subsequent rectal dilation showed not more than the usual diaphragmatic like constriction.

I believe that inflammation and some ulceration of the mucosa occurs in the *early*

stages of the disease with subsequent sub-mucous cicatrix formation. I have seen only two early cases of proctitis with wart-like excrescences and thickening of the rectal walls. Others have observed this type of case progress into the stricture we are discussing. Proved gonorrheal proctitis has been reported developing into rectal stricture.

The treatment of choice of the obstructive condition is gradual dilation without rupture. The use of galvanic current has seemed to facilitate the gradual dilation in some cases. Patients coming from a distance and having a tight stricture often prefer a quicker dilation which requires an anaesthetic (sacral or gas) and involves some incision or rupture of the scar. Proctoscopic visualization insures starting the bougie, or preferably at the start, the finger, in the opening properly, and is a factor of safety. High stricture should be dilated only slightly and with extreme caution as to peritoneal rupture. I have applied carbon dioxide snow to a few strictures but have not been able to follow the cases close enough to make out softening of the tissue nor decided advantage of the method. The universal tendency of the stricture is to return.

Colostomy is life saving and should not be denied in some cases. I have done it under local anaesthetic on a case complicated with discharging multiple fistulae, much emaciated, running septic daily temperature of 104 and 105 degrees, brought in on a stretcher unable to turn himself, the buttocks lying in a pool of the constant feco-purulent discharges. The change post-operative was remarkable; in three weeks the patient was eating well and walking about the ward with normal temperature and not needing a dressing to the fistulous scars nor anus. When last heard from about four years later he was doing manual labor and well pleased with his permanent colostomy.

I have appreciated and greatly enjoyed Dr. Allen's excellent paper.

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VESICO-VAGINAL FISTULA*

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A study of the records of the Oklahoma City Clinic and case reports in the literature of vesico-vaginal fistula, reveals the fact that many of these cases required multiple operations before cure was accomplished. One of the writer's cases had been operated twelve times and in the literature repeated operations are common, the greatest number noted being 18 in a case reported by Dr. David W. MacKenzie of Montreal.

Occasional failure is bound to occur, of course, and now and then a case will repeatedly resist the most carefully planned and executed operation, and yet the percentage of failures would seem disproportionately high when one considers with what thoroughness the profession has studied every phase of the subject.

It would seem that the peculiar difficulties presented by this condition have acted as a challenge to some of the best surgical minds until at the expense of infinite patience and ingenuity on the part of the gynecologist, urologist and general surgeon, a solution has been found for practically every combination of circumstances which may accompany these trying cases.

The situation gives rise to the thought that perhaps some of the failures would not have occurred if the operator had strictly adhered to the well defined surgical principles which have been found essential to success. In the absence of anything new or original to present, it was such consideration as these and the hope that some mutual benefit might be derived from a brief discussion at this time of some of the salient features of the subject that prompted the writing of this paper.

Historically, there is very little of importance prior to the time of Sims. It was in 1855 that J. Marion Sims brought out a method for the handling of this condition so correct in its surgical conception, that after demonstrating his method in New York City, it was immediately accepted by the profession with the result that the percentage of operative cures of vesico-vaginal fistula rapidly increased.

The principal points of his contribution were the fashioning of a vaginal speculum for better exposure, freshening the edges of the fistula, the use of silver wire sutures and the employment of an inlying urethral catheter to encourage healing.

Then in 1894 Mackenrodt recommended and practiced the free separation of the vaginal wall from the bladder wall and the suture of each one separately, thus finally placing the surgical repair of vesico-vaginal fistula on a firm scientific foundation.

The etiology of vesico-vaginal fistula may be summed up in order of frequency as follows:

1. Total hysterectomy whether by the abdominal or vaginal route, and especially when complicated by post-operative infection.
2. Malignancy of the bladder wall either primary or as an extension from the cervix or the vagina.
3. Protracted labor and difficult instrumental deliveries.
4. Colpotomy incisions as in a case recently operated by the writer, the physician having incised what he thought was an abscess of the vaginal vault cutting directly into the bladder.
5. Exceptional causes such as the sloughing into the bladder of a pessary, etc.

In doing a hysterectomy a fistula may be produced either by cutting directly into or otherwise injuring the bladder or by secondary necrosis of the bladder wall due to interference with its blood supply. The latter seems to be the only feasible explanation of those cases which occur from four to ten days after operation.

While the basic principles involved in the treatment of this difficult condition have not been materially changed since the days of Sims, Emmet and Mackenrodt, there have been certain refinements of technic and procedures for the cure of especially intractable cases brought out in more recent times that are definitely helpful and that merit our consideration when planning an attack on a particular case.

Among these may be mentioned the following: The careful pre-operative treat-

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ment of infections of the urinary tract and vagina, and when present, the removal of bladder stones and phosphatic deposits, their recurrence being prevented by acidifying the urine.

The definite location of the fistulous opening especially when situated near one of the ureteral orifices in which case, when the vaginal route is contemplated, a catheter should be placed for the easier identification of the ureter while operating.

The attempt to close small fistulae by the high frequency fulguration spark used through the cystoscope as suggested by John R. Caulk and others. This simple procedure will occasionally be successful in the very small openings.

When employing the vaginal approach, the use of the Trendelenberg position and, occasionally, in otherwise inaccessible cases, Duhrens lateral perineal incisions or the incision of Schuchardt for better exposure.

Careful freeing of the bladder wall to insure closure without tension.

The supra-pubic approach either transperitoneal or transvesical for certain high lying fistulae or those that have proved impossible to cure from below; the vaginal operation should be used when at all possible because it practically carries no mortality but one should not hesitate to go above if it assures better access.

Dr. Hugh H. Young reports the cure of a case that had been operated several times before. He opened the bladder and with a specially designed instrument, lifted the fistulous tract up thus making possible its successful excision and closure.

In a recent case in the Oklahoma City Clinic, operated by Dr. Blesh and the writer, the transperitoneal route was used successfully. The case followed a total hysterectomy complicated by infection in a fat patient. It was first attacked from below but this was found to be impracticable due to the high position of the opening and fixation of the vaginal vault as a result of the infection. A laparotomy was then performed and the bladder widely opened down to the fistulous tract which was then excised and the bladder and vagina separately sutured.

In certain wide defects of the bladder wall, various ingenious expedients have been used such as the turning into the bladder or flaps fashioned from the vagi-

nal wall by Dr. C. A. Roeder of Omaha, Nebraska, and the interposition between the bladder and vagina of the Gracilis muscle by Dr. John H. Garlock of New York.

Last, but by no means least in importance, is the careful postoperative management of these cases, the object of course, being to keep the bladder at rest and as dry as possible while healing is taking place.

To accomplish this one has the choice of the inlying ureteral catheters, urethral catheter and the supra-pubic drain to side-track the urinary stream around the field of operation. Whichever method is used, frequent investigation should be made to ascertain the potency of the drainage tubes to avoid the accumulation of urine in the bladder. This may usually be done by careful irrigation through the catheter with boric solution at frequent intervals.

Dr. A. L. Chute of Boston, speaks highly of a method he has used successfully in a number of cases—that of keeping the patient lying face down for the first week or ten days after the operation.

The value of this procedure lies, of course, in the fact that the base of the bladder, which practically always is the seat of the fistula, is carried up out of all possibility of contact with the urinary stream.

While this position maintained for a week or ten days proves to be very trying, nevertheless, it should be insisted on in certain difficult cases as it has real merit.

In conclusion, it may be stated that if one makes use of the above mentioned procedure as indicated, and adds to them patience, the careful handling of tissue and, most important of all, a thorough surgical technic, then whether gynecologist, urologist or general surgeon, success will be assured in the great majority of cases.

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UROLOGICAL DIAGNOSIS IN GENERAL SURGERY*

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The science of diagnosis has advanced greatly during the past one or two decades. Patients require now not merely a physical lookover, but when pathology is discovered special methods must be used to run it down to the finest detail. Thus develop specialties with their attendant increase of work and expense. The time was, for example, when an acute rhinitis was just a "cold." Later on someone found by transillumination that occasionally pus was found in a sinus, and those "colds" which hung on too long were suspected of being complicated by sinus infections. Still further developments brought the X-ray, the catheter, and even the diagnostic puncture so that now everyone recognizes that sinus infections require the attention of men skilled in that line of work.

Every anatomical system of the body has its expert students and special methods for examination and treatment. For the study of the brain, we resort to localizing methods such as equilibration and visual tests, lumbar puncture, X-ray, and even ventriculograms. These are detailed, expensive, tedious processes and require expert opinions for interpretation of findings. But the net result is an accurate diagnosis, and we feel repaid whether or not the patient can be cured. For the study of heart conditions, it is no longer sufficient to use a stethoscope and put the patient to bed. It is necessary to do these things plus X-ray, electrocardiogram, functional tests, and expert opinion. These procedures cost money and time, but they pay in restoring a greater percentage of patients to useful lives. Disease of the lungs now call for temperature records, sputum examinations, stereoscopic X-rays, lipiodol instillations, and in many cases bronchoscopic examinations. Expensive, disagreeable, even painful; but they get results in accuracy. Certainly the same statements are true of the gastro-intestinal tract. Until the doctor has had a \$25.00 series of X-rays, he has not begun to examine his patient. Then he needs to pass a tube and do fractional aspirations, run gall bladder series, do a proctoscopic

and a stool examination. All of which are costly and disagreeable to the patient but are accurate in their results.

Like other portions of anatomy, the urinary tract has developed its own technical methods of investigation. Next to the stethoscope, the cystoscope is probably the best known special instrument of diagnosis in use today. It, with the sound and ureteral catheter, have made it possible to investigate this otherwise unapproachable tract from end to end; and by the addition of the X-ray and clinical laboratory to arrive at information as exact and definite as that obtainable anywhere in the body. The amount of information obtained, however, is limited by the knowledge and experience of the observer, who must read in many facts which would not be apparent to men less skilled. Cystoscopy will not turn a kidney inside out and let you feel of it and look at it. The most it can do is to give certain definite facts—"markers" as the geologists say—from which can be reasonably deduced other facts. These deductions have been time-tried and have proved true in thousands of cases, hence for practical purposes may be considered as true. It is extremely fallacious, therefore, to suppose that any man who owns a cystoscope is qualified to use it. He may introduce the instrument and look; but does he understand the full significance of what he sees? There is a tendency to consider diseases of the urinary tract as everyman's land, and to give the subject the most superficial sort of attention. Generally speaking, the idea is prevalent that if a patient has albumin in the urine, it means Bright's disease; if he has pus, it means gonorrhea or pyelitis; if he has pain, it means a stone; all of which may or may not be true, but it leaves untouched the vast field of investigation which would tell what kind of Bright's disease, pyelitis, or stone, and why it is present.

The urologist can in most instances answer these questions. He can begin at the external meatus and determine if there is obstructive or infective urethral pathology present which might produce symptoms. He can examine the prostate and vesicles and determine exactly the amount of infection and its type. He can look into the bladder as well as one can look into a throat. He can pass catheters into the ureters and up into the kidney pelvis, withdrawing urinary samples which can be examined bacteriologically and chemically.

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While catheters are in place he can determine accurately the functional efficiency of each kidney. Incidentally the catheter becomes a sort of extended finger to find if tenderness is present in either kidney, and if so, whether or not it corresponds to the pain previously complained of. He can then make an X-ray outlining the shape of each kidney and the shape of the pelves and the course and size of the ureters, thus settling whether or not tumors, cysts, stones, or malposition may be present. By the characteristic picture in connection with clinical signs he can say whether or not pus is on the outside of or surrounds the kidney. And for those instances where he cannot pass catheters because of obstruction or painful lesions, he can inject a drug in the patient's veins which will freely outline the organs. Lastly, he can make a specific culture for tubercle bacilli and give a report in one week as to whether or not it is present. By such means he can determine with all exactness possible the presence or absence of surgical lesions of the urinary tract.

Since the information is easily obtainable by the proper methods and since it is all important in differentiating out the cause of many obscure conditions, why is it that the profession in general does not avail itself of the help of the urologist more frequently? So far as my observations go, the objection voiced against complete urinary tract examinations are about as follows:

1. It hurts and traumatizes the patient.
2. It costs too much.
3. It yields no information of value.

To which I would reply that the information obtained depends entirely upon the thoroughness with which it is done and the ability of the urologist. When the tract is examined as has been indicated, it cannot help clearing up the question of kidney or urinary tract involvements in three important classes of cases:

1. Obscure abdominal, pelvic, or lumbar pain.
2. Obscure abdominal, pelvic, or lumbar tumors.
3. Obscure constitutional symptoms such as headache, nausea, fever, loss of weight, etc.

To which we may add those cases where the surgeon hesitates to operate because

of doubt as to the ability of the patient's excretory organs to carry him through.

So far as the cost is concerned, it is not any greater than the cost of a thorough examination of any other important anatomical system; and the very patient who complains about a \$25.00 fee will, when told he is suffering from a serious condition, get on the train and go North or East and pay five or ten times that amount to get the opinion of one whom he considers an expert.

As to pain and trauma, the sad fact is that the technique of the average cystoscopy up to the present time has been rather brutal, but the last year or so has seen a refinement of technique which has made it practically possible to do a painless cystoscopy. The urethra can be anesthetized so that cystoscopy causes little or no pain except in prostate cases, and these do not need it in very many instances. The other source of pain, viz., sodium iodide irritation of the kidney pelvis, has been overcome entirely by the substitution of colloidal silver iodide, which is absolutely painless. Since I have been using this, patients get up and go back to work within an hour after the examination. Cystoscopy, nowadays, is virtually without suffering and certainly does no harm if carried out by a competent man who recognizes that there are times when it should not be done, as well as times when it is imperative, and that all in all it is only a part of the examination.

I do not mean to say that every patient coming in for diagnosis of an abdominal pain or urinary disturbances ought to be subjected to a complete cystoscopic examination for I do not so believe or practice. In many instances a complete study of the urinary tract by clinical laboratory and X-ray means will clear up a diagnosis without the use of the cystoscope. I do think, however, that unless a definite diagnosis can be made by such means, the patient is entitled to the benefit of the additional information which cystoscopy and pyelography will furnish.

If anyone doubts that there are plenty of cases which ought to be given a thorough urinary tract examination, let him listen to the figures given in Dr. Jeter's recent paper reporting 276 autopsies performed in Oklahoma City during the past three years. Of this number 57, or 20%, were found to have definite surgical lesions, 35 of which had not been diagnos-

ed prior to death. These were as follows:

SURGICAL LESIONS IN 276 AUTOPSIES

| Anomalies | Present | Diagnosed |
|------------------------------|---------|-----------|
| 1. Fused Kidney | 3 | 0 |
| 2. Absent Kidney on one side | 2 | 0 |
| 3. Atrophied Kidney " " | 2 | 0 |
| 4. Polycystic Kidneys | 3 | 1 |
| Tumors | 5 | 1 |
| Trauma | 6 | 6 |
| Stone | 16 | 6 |
| Obstruction of Ureter | 20 | 8 |
| Total | 57 | 22 |

It is clear that in at least 48 cases—those of tumor, trauma, stone, obstruction, and one of polycystic disease—the kidney pathology directly contributed to the patient's illness and death; while the other nine were of such a nature that the knowledge of their presence would have been very important in any surgical procedure. The principal fact in this report is that at least 20% of all autopsies showed surgical lesions of the kidneys or ureter, and that even in a first class hospital less than half of these lesions were diagnosed prior to death.

I recently looked through the records of a number of known kidney cases which had been worked out cystoscopically and otherwise. I was surprised to find that out of the first eleven cases, five showed a negative urine examination on admission to the hospital. These five turned out to be two cases of marked hydronephrosis with pain as the presenting symptom; one case of tuberculosis and stone, with weakness, loss of weight and nervousness as the presenting symptoms; and two cases of perinephritic abscess, one of which showed tenderness in the lumbar region and the other contracture of the psoas muscle. These cases were all in a hospital and presented diagnostic problems so serious that they were seen by numerous consultants without arriving at a definite diagnosis until they were cystoscoped and X-rayed. The urinalysis was misleading, and the point I wish to make is that the ordinary urinalysis as made in good hospitals is not a reliable index as to whether or not disease is present in that patient's urinary tract and is not altogether dependable. Either we are not careful enough in our laboratories, or there are many cases of gross kidney disease in which part of the time the urine appears normal. Four of the five cases cited above showed definite pus when the urine was taken direct from

the kidney. One case of perinephritic abscess did not.

In conclusion, I am told that in the Mayo Clinic every case of abdominal pain of a chronic nature is first referred to the urological department to rule out kidney pathology.

When our general surgeons come to depend on the information which can be furnished by correct urological work, there will be far fewer operations for chronic appendicitis and chronic gall bladder; and there will be much fewer abdominal explorations; there will be more kidney and ureter work done with better results to the patient; and incidentally, there will be much earlier recognition of lesions which can be corrected, but which if left to continue, in time will become very serious.

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DISCUSSION: *Dr. O. R. Gregg, Enid:*

I think we are pretty much in agreement with Dr. Hayes. There is something wrong with our surgical diagnosis in many cases. You see them every day in that condition, after the 5th, 6th, or 7th operation, still they have their pain. There is something wrong with our diagnosis. What is it? In the first place, we do not pay enough attention to symptoms. Hematuria, for instance. It will probably wear off but in the meantime we are overlooking a symptom that may lead to a diagnosis of malignancy or tuberculosis, or it may mean something different but it should be looked into. Osteopaths and chiropractors are getting the business and we are losing it simply because we are not using enough care in examining our patients and diagnosing. We ought to do a little extra work and know our patients' condition. We might try doing our work and doing it right, and chiropractors and osteopaths will not have much practice when we pay a little attention to details.

Dr. ———: I am certainly glad to see those pictures and to follow the paper as read. This urological work is work that should be studied carefully to get proper diagnosis in cases from the cradle to the grave. There are many cases of children, I believe, who are born with urological conditions that are overlooked. I have one in mind just now. About one year ago, in a very few days after the child's birth, it was noticed that no food that could be given agreed with it. When it was put on the mother's breast that didn't agree. It

was treated for stomach trouble and the different foods and modifications of foods were used, but it did not improve at all. It was sent to a specialist who took particular pains to arrange a diet for this child. Nothing did it any good. It came back and was referred to this man who, in trying to make a more careful examination, decided he felt a mass in the region of the left kidney. He called a urologist. That man made a pyelogram of the kidney. All this time occupied about five months. The baby was under observation for malnutrition because of the stomach condition until it was five months old. The urologist when he came and made a pyelogram found it had kidney trouble, and insisted that the child be brought back again in about four days. The afternoon of the third day the child died. Autopsy revealed a movable abscess of each kidney, decidedly more in the left than in the right, with two stones in the left kidney more than half as large as the end of one's little finger. I believe those stones were in formation at the time of that child's birth. There was a history of the mother's having had some type of stones in the kidney. I believe that child was born with a condition for the development of stones and those did occur later on. A careful diagnosis in every case will forestall many operations. Recently I attended a lady who had lost her appendix, lost her gall bladder, lost her ovaries, tubes, etc. She was sent to the hospital. There was nothing left but the kidneys, which showed very definite pyelonephritis. The kidneys were full of pus and when that was drained she got well—what was left of her.

Dr. Horace Reed, Oklahoma City: I would like to make a talk directed at general surgeons. I approve in general what has been said, but I would take issue particularly with what was said about some methods used in making a diagnosis, that there was no harm done the patient by injury. That touches a question which I have in mind. I speak as one who was perhaps one of the very first in this State to use a cystoscope. 25 years ago I began to use it, and I have gone through all the different developments of the cystoscope. I do not use it now as much as formerly, particularly the catheter cystoscope very much less, because I have seen injuries and pain from its use by persons who did not use it with enough care—in other words, who made a careless cystoscopy and did not make a pyelogram. In one case I introduced a catheter into the kid-

ney and the patient immediately complained of pain. I subsequently found he had a tumor in the kidney, found hypernephroma in the lower pole of the kidney. Then also, there is danger of the catheter breaking off. The thing I am driving at is this, make your examination in a way that will not injure the patient. Use the examining cystoscope but use the right one. I use the plain examining cystoscope. I have never seen a chill or even fever of any kind with the use of the plain cystoscope. No anesthetic is required. I believe diagnosis should still be made by use of the history, your eyes, your fingers, and all that you have got, and not by those things that sometimes injure your patients and give them trouble they did not have before.

Dr. A. Ray Wiley, Tulsa, Chairman: The first time I ever saw a cystoscope used was in the hands of Dr. Reed 19 years ago in Oklahoma City. My personal opinion according to my experience is that the factor of trauma in the use of the cystoscope is entirely with the individual. I refer all my work, and find that there are two men in Tulsa who never hurt my patients and never give them any trouble. They use the same instruments and the same methods, apparently, as the others. These two are getting my work.

Dr. Hayes: Closing. I am very glad Dr. Reed and Dr. Wiley spoke. I feel just as Dr. Reed does about the trauma that has been done by many men in attempting to cystoscope. I have never seen a catheter break off, but feel that a man ought to test those things before he uses them. The only place I use anesthetic is in the meatus, where cocaine is used. The cystoscope will hurt when it goes through the meatus and I thoroughly anesthetize it. I think it is very important that no force or trauma be used in the ureter, and I would be fully as strongly against it as Dr. Reed or anyone else. I also think the cystoscope should not be used in every case of infection in the kidney, in this I agree with Dr. Reed perfectly.

Dr. Reed: The cystoscope is a dangerous instrument, and should only be used in trained hands, and then only used when needed.

SPINAL ANAESTHESIA*

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In the last twenty-five years, surgery has made great strides. Today we do with certainty and precision many operations that were difficult and hazardous before we had the experience of the last twenty-five years.

Yet today, the chief dread of a patient who is to undergo a surgical procedure, is the anaesthetic. After a stormy experience with chloroform and many deaths, we found ether and gradually learned how to use it so that it has made narcosis safe if not pleasant. In the meantime, we have been hunting for an anaesthetic as safe or safer than ether, but with less unpleasant features.

Nitrous oxide gas and ethylene both found a place for use and in some cases were better than ether. Local anaesthesia has had its adherents, and in some cases is a decided advantage over the others.

It has been many years since the first spinal anaesthetic was used. Since then it has been used more or less sporadically and with a great deal of uncertainty and fear. Deaths were occurring at too frequent intervals to make it a desirable procedure. We thought the cause of death was a paralysis of the respiratory and cardiac centres by the anaesthetic. Many attempts were made to protect against the anaesthetic drug reaching the higher regions of the cord.

It was not until the work of Harry Koster and Louis Kasman on Spinal Anaesthesia, that we realized the physiology and chemistry of the procedure. They proved to us that the anaesthetic did not paralyze the respiratory or the cardiac centres, but that death was caused instead, by anemia of the brain, due to the fact there was not enough blood reaching the heart to supply the brain.

We decided to verify the findings of Koster and Kasman. We used a fifteen pound dog, injecting 50 mg of novocaine dissolved in 2 cc of spinal fluid from a tap of the spine between the atlas and the skull. With the dose so placed, we got anaesthesia of the upper part of the body, but with respirations hurried and heart

action accelerated. In fact, the effect upon respiration and heart action was similar to a severance of the vagus. The hind part of the body became anaesthetized more slowly and less profoundly, and the reflexes were never lost in the hind legs and the tail.

All surgeons who have used spinal anaesthesia have noted the fall in blood pressure. This fall in blood pressure is due *not* to a weakening of heart contraction, but to a lessening of the amount of blood returned to the heart. The greater splanchnic nerve supplies all the blood vessels of the abdominal viscera with constrictor fibers. The fibers of this nerve leave the spinal cord by way of the anterior roots of the spinal nerves from the first dorsal to the third and fourth lumbar nerves. When the anaesthetic is injected into the subarachnoid space, the impulses along these fibers are intercepted which results in a marked relaxation of these blood vessels, hence lowering of the blood pressure. If the patient is in an upright position or even partly so, there may be so much blood held in the abdominal blood vessels as to allow none to reach the heart for the heart to pump it to the brain, and death may result from anemia of the brain.

But if the body is in "Trendelenburg" position, gravity, (which is always working), will carry blood to the heart so that it can be pumped to the brain thus supplying the brain with blood at all times. If this position is maintained, there is practically no danger from the use of novocaine or neocaine in sufficient amounts to produce an anaesthesia of the whole body, enough for operations on all parts of the body.

Another point that it might be well to mention here, is the selective action of the cocaine derivatives for the sensory nerves. Pain sense is gone before pressure sense, and both of these, before muscle sense. Operations on the forearm such as tendon sutures, are markedly simplified by the use of this anaesthesia, as voluntary movement is still present after pain sense is abolished, making it easier to distinguish the tendons and get a proper line up.

Also, spinal anaesthesia is a block anaesthesia, hence the elimination of shock. It is a great pleasure after doing a particularly difficult and shock producing operation, to have the patient leave the operating table without shock manifestations, in fact, in as high spirits or feeling

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better than they did before the operation.

There is no irritation of the lungs by the inhalation of anaesthesia, mucus or vomitus. No irritations of the kidneys, as not infrequently occurs after ether anaesthesia. Postoperative pains are lessened as the bowels have not been paralyzed and do not distend with gas as they do under inhalation anaesthesia.

If anyone is to use spinal anaesthesia, he should thoroughly familiarize himself with the technique, as with a proper technique there is practically no danger and the anaesthesia is the most satisfactory and pleasant, both to the patient and to the surgeon.

Our technique is as follows:

No special preparation before operation. One-half hour before operation, adult patients receive 1-4 gr. morphine, 1-150 gr. atropin, hyperdermically. When the patients are brought to the operating table, they are placed on side, and back flexed if possible, as it is much easier to make a spinal tap with the spine flexed. The back is cleansed with alcohol, then wiped with alcoholic solution of picric acid.

We give all our spinal anaesthetics the same place, whether we want low or high anaesthesia. That is in the interspace between the second and third lumbar vertebra.

We use one c.c. of a water solution of novocaine 1% and ephedrin 5%. This is placed in a syringe and fine needle attached. An anaesthetized wheal is made on the skin at the point between the second and third lumbar spines. Then the needle is changed to a 20 gauge needle 1½ inches long and the deeper tissues are anaesthetized down to the ligamentum subflavum. An 18 gauge, 3 inch needle with obturator is put into the subarachnoid space, obturator withdrawn and 4 cc of spinal fluid allowed to flow into the ampoule, containing 150 mg of novocaine. Obturator is placed in the needle and the solution in the ampoule agitated to dissolve the novocaine. This is then drawn up into a syringe and the obturator removed from the spinal needle and solution reinjected into subarachnoid space. Be sure that the needle is still in the subarachnoid space before injecting, or your anaesthesia will not be satisfactory.

The needle is withdrawn with syringe in place so there will be no loss of fluid. The puncture is covered with sterile gauze

and the patient placed in position for operation, but always with the head lower than the body. The body should be at an incline of 10 degrees at least, and the head should be kept lower than the body for at least two hours after the anesthetic is given.

If this is carried out and the body maintained always at an incline with head down, one need not fear any danger from the anaesthesia. The drop in blood pressure can be ignored as there will always be enough blood carried to the heart by gravity to supply the brain. To use stimulants of any kind to raise the blood pressure is worse than useless, as the drop in the blood pressure is due to a block of the splanchnic nerve and the constrictor muscles of the vessels cannot receive impulses.

Spinal anaesthesia has many advantages over inhalation anaesthetic. Being a block anaesthesia, it eliminates shock. Relaxation is better with spinal anaesthesia than with ether. In reducing fractures, it is the ideal anaesthetic as relaxation is perfect, allowing easier reduction and there is no unconscious movements to displace the bone, as the patient comes out of the anaesthetic.

As the bowels are contracted under spinal anaesthesia, it materially helps in exploration of the abdominal cavity and makes many operations easier to perform. In doing a cholecystectomy under ether anaesthesia, a considerable part of the operative time is spent in packing off the viscera to expose the field of operation and waiting for complete anaesthesia to allow exposure. With the spinal anaesthesia, relaxation is perfect. All the packing required, is just enough to protect the viscera from injury, from trauma, or soiling, and no time lost waiting for anaesthetic to be pushed to the required extent for relaxation. It is the ideal anaesthetic for the patient with impaired heart. Closure of the abdomen is easier under spinal anaesthesia as the viscera do not try to protrude thru the incision. The surgeons' mind is freer to act as he has no anaesthetic to watch.

Postoperative care is simplified. The patient more comfortable, less nausea and vomiting. We never have seen dilation of the stomach after this anaesthesia. Less distension, fewer patients have to be catheterized. Cough, which not infrequently is distressing after ether anaesthesia, is absent.

Remember, always to keep the patient in "Trendelenburg" position and you may dismiss from your thoughts the anaesthetic and proceed with operation. We feel that spinal anaesthesia is safer than ether.

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Harry Koster, M. D., Louis Kasman, M. D. Brooklyn, New York. "Surgery, Gynecology and Obstetrics." November, 1929.

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DISCUSSION: A. L. Blesh, *Oklahoma City.*

The possibility of spinal analgesia was first visioned by Corning, who published his experimental work in 1888.

Quinke approached the subject three years later by the route of lumbar puncture.

It was Bier however, who, in 1899 established the surgical application of spinal analgesia.

From this date up to the present time spinal analgesia has had to run the gamut of desperate cases in which the surgeon believed inhalation anesthetics too dangerous to use. All new anesthetics have had to fight up thru this to an established place. As one of the early routine users of gas anesthesia, I have vivid memories of this experience.

I confess that I cannot understand the kind of reasoning that will lead one to conclude that the anesthetic which is safest to use in the bad risk is unsafe in the good risk. Table deaths whether anesthetic or not, are bound to be more frequent under these conditions. But table deaths do not comprise the total anesthetic deaths nor are all table deaths anesthetic deaths. As to anesthetic deaths, ether has always had a good alibi in that administration deaths as statistics go, are the fewest and in the administration is the nearest fool-proof but how about remote fatalities resting on the lungs and kidneys?

It has been shown that many of the unpleasant features can be eliminated by a careful technique, the use of a fine needle and strick asepsis.

As to the danger, I think it has been demonstrated that death need not be feared from respiratory paralysis but rather from acute cerebral anemia due to the pooling of the blood in the splanchnic area. This is easily obviated by gravity alone. This also is responsible for the low blood pressure.

That novocaine has a selective action and is early "fixed" by the sensory tracts

and has no effect on motor areas seems also well established. I think Dr. Livermore's experiment demonstrates this fact.

As far back as 1900 Tait and Caglieri proved in three cases that analgesia of the head and face could be safely induced. The question is still being agitated. It has also been demonstrated that analgesia of the higher brain centers is not dangerous to life but merely induces peaceful, natural sleep.

Mortality statistics are notoriously unreliable. While Chiene reported in 12,000 cases, one death in 570, he comments that cocaine was the drug used and also that very few could be attributed solely or even partially to the anesthetic. Jonnesco reported 1,386 cases without mortality. In thinking of statistics it is well to remember that many case reports begin with the statement "The patients' condition contraindicated general inhalation anesthesia."

Personally, I feel that spinal anesthesia induced by novocaine has come to stay and will make a place for itself. I do not think it will replace inhalation anesthesia.

I do not believe we have an universal anesthetic and that the anesthetic should be fitted to the patient and not the patient to the anesthetic.

In closing, it is my desire to commend the paper and my only criticism is to warn against over-enthusiasm.

AMYTAL AS AN ANESTHETIC*

W. G. MADDOX, M.D.
DALLAS, TEXAS

At present there is much being written about sodium amytal intravenously as an anesthetic. It has been used both in surgery and obstetrics and no doubt most of the surgeons and obstetricians present have used it within the past year. I have used a great deal of the sodium amytal in obstetrics but since my original work has been with amytal tablets I shall confine this paper to the use of the latter only.

Less than a year ago we had a patient admitted to the hospital who had taken twenty-five tablets with suicidal intent. We knew of no specific antidote to administer so we treated him symptomatically

*Read before the Southern Oklahoma Medical Association, June 10th, 1930.

for about forty-five hours at which time he awakened feeling fine, and entirely out of the notion of bringing life to an end. I then began some work on dogs, giving them as much as a grain per pound body weight. The dog would sleep from forty to fifty hours and awaken in good condition but very hungry and thirsty. I then gave him food and water for a few hours and then some more amytal tablets. This process would be repeated several times until the dog had been under the influence of the drug for about two weeks. While these dogs lost considerable weight there were no complications and no gastro-intestinal or genito-urinary disturbances.

For the past six months I have been using the amytal tablets in our out-patient obstetrical work. To present we have used it in about 150 cases with no untoward symptoms either in the mother or the baby. The time and method of administration varies greatly with the individual. It takes about three hours when administered orally to have its maximum effect. Therefore we try to give the drug early enough so that the entire amount administered will have been completed at least four hours before the end of labor. This of course is usually easy enough to do in primipara, but frequently not so easy in multipara. At present in primipara our technique is as follows: We watch the patient for contractions, making sure that she is having labor pains. If she is apparently suffering some pain from the contractions we give ten grains of chlorotone. She is then examined and if found to have some effacement of the cervix and a beginning dilatation we give six tablets. By the end of one hour she has begun to become sleepy, and at this time is given four to six more tablets, provided she has made some progress during the previous hour. If there has been no progress during the first hour we withhold the second dose until there has been some progress. The reason for not giving the second dose is not that we feel that it retards labor but to keep the maximum anesthetic effect until nearer the second stage of labor. In many cases where labor is longer than usual we give as many as sixteen or eighteen tablets. After the patient is well under the influence of the drug she will sleep very soundly between contractions but is usually restless during contractions. Often they will talk at random during the contraction and will try to get up and walk. To

overcome this restlessness we give the chlorotone early and then as a further aid we give morphine gr. 1-6 every three to four hours which is of great help.

In multipara we carry out the same procedure except we give the entire amount of the drug at the initial dose. If she gives a history of short labors and from examination we feel that she is going to deliver within one to two hours we give the sodium amytal intravenously.

During the second stage of labor we give either nitrous oxide or chloroform. It takes a very small amount of either of these anesthetics to produce complete relaxation. While we have collected no statistics to prove this fact we feel that our number of perineal lacerations have been reduced since we have been using this form of analgesia. This is probably accounted for by the fact that we get such a perfect relaxation, during the second stage of labor.

Following the delivery of the baby the average patient will sleep from three to ten hours. There is no restlessness at this time and in multipara we have had the good fortune of doing away with after-pains. The patient awakens rather suddenly at times, then again it takes *one to two hours for her to regain complete consciousness* after she first begins to notice things. Very often they are much surprised when they are told that the birth of the child has taken place some hours ago.

Due to the fact that the blood pressure is lowered from thirty to forty m.m. systolic we feel that amytal should not be given to patients having low blood pressure. On the other hand for those with high blood pressure it is almost ideal. We have been able to reduce the blood pressure in some of our pre-eclampsics as much as sixty m.m. In eclampsia we have been able to control the convulsions almost immediately by the intravenous use of sodium amytal. In the pre-eclampsics we frequently give the amytal tablets over a period of several days and so far not one of them have ever gone into convulsions.

As premedication in surgery, several of the men on the staff are giving six tablets three hours before operation. The patient goes to the operating room without any apprehension and fear of anesthetic. Only about half as much gas is required to maintain complete relaxation as when no amytal is given and the postoperative medication is reduced many times.

CONCLUSIONS

1. So far as we know the lethal dose of amytal is many times greater than the dose required to produce analgesia.
2. There has been no evidence of harm to the mother.
3. There has been no evidence of harm to the baby.
4. Labor is not delayed.
5. Labor may be rendered practically painless.
6. After-pains are eliminated almost completely.
7. Complete control of convulsions is possible with amytal.
8. Operative procedures are more easily carried out and less anesthetic is required with amytal premedication.
9. The most serious objection to amytal is that the patient is more or less restless during contractions.

6223 Reiger Ave.

ANESTHESIA FROM A SURGICAL VIEWPOINT

F. L. CARSON, M.D.

J. E. HUGHES, M.D.

SHAWNEE

The ideal anesthetic has not yet been developed. To meet with this ideal, the agent should fulfill the following requirements:

First: Absolute safety.

Second: Complete relaxation.

Third: Freedom from obnoxious odor and taste.

Fourth: No bad "after effects."

Fifth: Oblivion.

However, if we consider that the very word anesthesia, was coined only something less than a century ago, we can realize that real progress has been made. It is a long cry from opium, alcohol and hemlock seventy-five years ago, to the modern method of alleviation of the suffering incident to operation.

The multiplicity of agents that are at present available to the surgeon should be carefully studied, and the choice made of the drug which is applicable to the particular patient about to undergo the operation.

Ether, of course, is still the main-stay in the majority of cases for the average

patient. It's safety in capable hands has much to commend it, but it's obnoxious features are so many that if possible it will be avoided in selected cases.

The unpleasant effect incident to it's administration are not so soon forgotten, once having taken, and the nausea and vomiting following, are always a source of worry, particularly to the abdominal surgeon. Few operators have had the good fortune to escape the catastrophe of having a patient eviscerated following an operation, which has been attended with violent retching.

Notwithstanding the many untoward effects of ether, the fact that it is daily administered many thousand times, under all sorts of conditions, makes us realize that it's successor is going to have a record to excel, that is enviable.

Chloroform, the introduction of which soon followed that of ether, has been largely discarded in the United States. While it possesses many features that are superior to ether, namely it's more pleasant odor, and it's lessened bulk, the dangers of circulatory failure and this without warning, have largely discredited this drug.

Nitrous oxide, which for so long was used largely by dentists, until it's combinations were elaborated, has much in it's favor. It's rapidity of action, not unpleasant odor, and freedom from after effects, are admirable. It's disadvantages are the lack of muscular relaxation, which are so great an impediment in a difficult abdominal case.

Local anesthesia has a wide and increasing field of application. Since the introduction of the synthetic drugs which is represented by procain, and the abandonment of the more toxic and less stable cocain, the number and extent of surgical operations has been increased many times. However, the drawbacks to this form of analgesia are so many and varied, that they need hardly be mentioned. When one hears that particular surgeon in a certain locality is doing all his major operations under local, one feels that this surgeon is working for a record, and not to the best interest of his patients.

Hernioplasty is the main surgical procedure which represents the type best fitted for local analgesia. Many other procedures may be painlessly performed without inducing general insensibility.

Local analgesia is particularly contraindicated in deep abdominal work, and especially in the very nervous patient.

Doubtless most surgeons have performed an easy operation for the radical cure of a hernia, only to have the patient do badly, and to take weeks to recover from the psychic shock. Even when the operation is entirely painless, these nervous individuals know the operation is being done, and the rattle of the instruments, and the snip of the scissors act deleteriously and delay convalescence.

Spinal analgesia has much to commend it, and the technique should be thoroughly mastered by everyone. Whether or not the Pitkin method is going to reduce the many objections to this type remains to be seen. In our hands it seems to be a step in the right direction.

The profound drop in blood pressure together with the occasional severe headache following, should make us reserve this type to those cases in which other agents are contradicted.

Lastly, we are forced to call attention to Sodium Amytal (sodium-iso-amyl-ethyl-barbiturate). This drug introduced comparatively recently, has in our hands and in a limited number of cases been a great addition to our armamentarium. This drug, a white crystalline powder, comes in sealed ampules, with an appropriate amount of distilled water in another ampule. This is to be dissolved immediately before using.

The technique we use is as follows:

About four hours before the time set for the operation, ten grains of chloretone are given: one-half hour before operation, morphine one-sixth to one-fourth grain is given by hypodermic, and then the patient, if not too apprehensive, is taken to the operating room, and the blood pressure taken. If very nervous, the drug is administered in the patient's room. The drug, which has previously been properly prepared, is given intravenously in one of the veins of the arm; it is given slowly, 1 cc per minute of a 10% solution. The maximum dose should be not more than twenty mg per kilo. Sleep is usually induced at the end of three minutes, and is accompanied by snoring, and is induced without struggling or movement of any kind.

We try to use the drug merely as an adjunct to nitrous oxide, but in some cases

although we have used the minimum of amytal, no gas was necessary.

We believe that the unfavorable reports occasionally heard, are due to an attempt on the part of the anesthetist, to use the drug to the exclusion of gas. While we do not feel that sodium amytal is a panacea, we believe that in it we have a valuable agent, that we should become familiar with its qualities, and its virtues, and use it as indicated.

We have been particularly thankful to have it at our command in cases of intestinal obstruction, where vomiting is frequently so troublesome and in goiter cases, especially the toxic type, who are notoriously unstable from a psychic standpoint.

Until we are more familiar with sodium amytal, it should be used cautiously and the effects carefully tabulated, so that in the course of time the combined experience of many may be studied and a proper estimation made of the drug.

There is a preliminary drop in blood pressure that at first we found alarming, but so far the systolic pressure has never fallen below 80 m.m. and soon rises and remains near normal. We have always had at hand ephedrin and sodium caffeine benzoate, but have never felt it necessary to administer a single dose.

The sleep induced, depending on the size of the dose, lasts from two to twelve hours, but is not profound. The patient can usually be aroused sufficiently to take water, and help turn himself. By the time consciousness is freely established, the time of the greatest postoperative suffering will have passed, which alone is certainly an advantage.

In only one of our cases has there been any postoperative delirium. The restlessness occasionally seen can usually be controlled by the talk of a tactful nurse.

With Avertin (Tribromethanol) we have had no experience, but the reports from some European Clinics, as well as some from the Eastern Hospitals in the United States, seem to be favorable.

All this work leads us to believe that anesthesia is about to undergo a revolution and it behooves the surgeon to keep abreast of the times, and choose those agents, which in his judgment offers the greatest safety and most comfort to his patients.

THE JOURNAL

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Articles sent this Journal for publication and all those read at the annual meetings of the State Association are the sole property of this Journal. The Journal relies on each individual contributor's strict adherence to this well-known rule of medical journalism. In the event an article sent this Journal for publication is published before appearance in the Journal, the manuscript will be returned to the writer.

Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

Advertising of articles, drugs or compounds unapproved by the Council on Pharmacy of the A. M. A., will not be accepted.

Advertising rates will be supplied on application. It is suggested that wherever possible members of the State Association should patronize our advertisers in preference to others as a matter of fair reciprocity.

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EDITORIAL

OKLAHOMA CITY CLINICAL SOCIETY ANNUAL FALL CLINICS, NOVEMBER 5, 6, 7, 1930.

The Oklahoma City medical profession in keeping with its well known progressiveness, is undertaking to put on its annual fall clinic on the dates above indicated. The sponsors for this meeting, from the medical profession of Oklahoma City, are outstanding men and of the highest ability. The work has been subdivided in such a way that all activities will be under the direction of committees, members of which will have the highest personal in-

terest in the success of the meeting. The following distinguished guests are only a part of the array of talent to be offered to those attending the meeting:

Doctors Francis M. Pottenger, Monrovia, Calif., Irving W. Potter, Buffalo, N. Y., Ernest Sachs, St. Louis, Mo., Melvin S. Henderson, Mayo Clinic, Isaac A. Abt, Chicago, Arthur E. Hertzler, Halstead, Kansas.

Those desiring to attend this clinic should make hotel reservations early and should communicate with Dr. Phillip M. McNeil, care of the Chamber of Commerce, Oklahoma City, Oklahoma.

The following hospitals will be available for the various clinics offered: University Hospital, School of Medicine Building, Crippled Children's Hospital, Oklahoma City General Hospital, McBride Reconstruction Hospital, St. Anthony's Hospital, Wesley Hospital, Polyclinic Hospital and the Capitol Hill Hospital Clinic.

FROM THE SUBLIME TO THE RIDICULOUS

A trite old saying, "there is one step from the sublime to the ridiculous." Late-ly we have had an even earful demonstrat-ing the fitness of this saying. Aside from the supreme effrontery of Brinkley, the Kansas "goat-gland expert," who probably is on the road to utter elimination; the public and the medical profession have a very just grievance against the State and national advertisers who constantly misuse the radio to advertise their wares.

The sponsors of a certain well known brand of cigarettes is one of the prime offenders in this respect. The unwary lis-tener, as is usual in such matters, finds himself caught on a very simple hook. He listens to what seems to be a fairly sensi-ble talk upon the virtues of some of the public health and professional activities, only to hear the speaker wind up with a squawk, about like this: "We take pride in announcing that 29,999 physicians have testified to the great qualities of so and so baked cigarettes," "not a cough in a carload," etc. The intelligent listener then yanks the radio out of connection at once and feels like he has been stung, taking a line from little Benny's notebook, and so he has been.

OTITIS MEDIA, AN UNSUSPECTED MENACE

Despite the rather constant reminders of our friends the oto-laryngologists, acute otitis media remains a formidable menace to the well being and sometimes life of our patients, especially those in infancy and childhood. The so-called common cold, produced by such a large number of infections of varying intensity and affecting people with such varied powers of resistance certainly lays down too much morbidity and a certain percentage of the cases end in fatalities.

The writer would call attention especially to the delay on the part of the general practitioner in suspecting the presence of an ear infection which can only be controlled by incision and drainage. Early incision and drainage lessens morbidity, theoretically it should lessen also the extension of what is often a simple middle ear infection into menacing mastoiditis, meningitis, and other dangerous adjacent infections. The helplessness and age of many of these patients commonly prohibits their making specific complaint, as an adult would do to possibly call attention to the seat of trouble, so the attendant must be keenly observant if what he thinks is simply a bad cold, a mild broncho-pneumonia, or some similar process, is not really a masked and too often severe ear infection. The cold, pneumonia, throat infection, as well as the ear infection having probably originated from what was first considered a simple cold.

Probably the best plan is to always remember the ears of the infant. At times, especially in Oklahoma, and perhaps in most other localities, ear infections seem almost epidemic. They certainly mount into the hundreds, after sudden changes of temperature, exposure to wetness and high winds, which fill the air with floating infections. As in most other tragic things of medicine, eternal vigilance on the part of the physician is the only thing which may avert disaster.

OUR NEW PICTURE FILMS

The State Medical Association, at the Shawnee meeting, authorized the purchase of several films depicting some rather common problems often met by the physician. These films are in the possession of the Extension Division of the University of Oklahoma at Norman. They are sent out under a certain reasonable ar-

angement to county societies at little or no cost, the only provision being that county societies have a proper place and proper qualified operator on hand to run the films through the machine. The films are on:

1. *Benign Prostatic Hypertrophy*—1 reel. By Dr. J. Bentley Squier, Professor of Urology, College of Physicians and Surgeons, Columbia University. It shows the normal anatomy and physiology and development of prostatic hypertrophy and pathology.

2. *Acute Appendicitis*—2 reels. By Dr. Edwin Martin, Philadelphia. This film thoroughly covers diagnosis, operation and postoperative treatment. It shows anatomy including the variations from normal most frequently encountered. The pathological aspect of inflammation of the appendix from its onset to perforation, with localized and general peritonitis. The films emphasize the signs, symptoms and diagnosis of the disease.

3. *Treatment of a Breech Presentation*—2 reels. By Dr. Joseph B. DeLee, Chicago. This film was produced at the Chicago Lying-in Hospital under Dr. DeLee's supervision. It begins with a diagnosis of the position and follows the process of labor through the various stages. All the steps of Pinard's Maneuver are clearly shown with clear explanatory manikin demonstrations as actually performed. The important steps in the repair of the episiotomy are shown as well as animated drawings where necessary. The whole process of this difficult subject is shown in detail.

It should be a matter of pride for Oklahoma physicians to know that ours is the first medical association to acquire its own films for the use of county societies. We are also to be congratulated on having a University with a department, whose cooperation places such material before the physicians at little or no cost.

ATTENTION

On page ten of the advertising section of this issue of the Journal, appears an announcement of the Fall Clinics to be conducted by the Oklahoma City Clinical Society, November 5, 6 and 7th. The Clinics will be held at the Huckins Hotel instead of the Skirvin, as announced in the advertisement. Notice of this change was not received in time to be made in the above announcement.

Editorial Notes—Personal and General

DR. J. O. GLENN, Chandler, is reported recovering from a broken leg.

DR. AND MRS. W. J. RISEN, Hooker, have returned after spending several months in Kentucky.

DR. R. Q. ATCHLEY, Tulsa, has just returned from Europe where he took Post Graduate work in London, Vienna and Berne, Switzerland.

DR. HENRY H. TURNER, Oklahoma City, is spending three months in Vienna and London, returning to the United States about December first.

GARVIN COUNTY Medical Society held its regular monthly meeting September 17th, at the office of Dr. W. P. Greening, Pauls Valley. A paper read by Dr. D. H. Cobb, Oklahoma City, was followed by a round table discussion.

JEFFERSON COUNTY Medical Society held their first fall meeting October 6th at Waurika. The meeting was held in connection with a free skin clinic conducted by Dr. D. C. Bondurant, Oklahoma City. Dr. Bondurant was accompanied by Dr. L. C. McHenry also of Oklahoma City.

SOUTHERN OKLAHOMA Medical Association held their 8th quarterly session at the Central Oklahoma State Hospital, at Norman, Tuesday the 9th. The attendance was, approximately, 110. The following program was rendered by the Hospital staff and some of the Norman doctors: Address of Welcome, Dr. A. W. Wickham, Norman; Response, Dr. D. Long, Duncan; Clinic on Dementia Precox, Drs. J. J. Gable, Norman and J. L. Day, Norman; Coronary Thrombosis, Dr. B. H. Cooley, Norman; Socalled Jake Paralysis, with Clinic, Dr. A. L. Turley, Norman; Organic Brain Conditions, with Lantern Slides, Drs. Carl Steen, Norman and Chas. Brake, Norman.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

The Treatment of Laryngeal Tuberculosis With Trichloroacetic Acid. By Benjamin Katz, M.D. American Review of Tuberculosis, May, 1930.

The author noticed an exact way of introduction of the trichloroacetic acid crystals into the larynx and has worked out what he has found to be a safe method of application. The instrument constructed consists of a shallow spoon-shaped container with a sliding cover, which can be opened or closed. The whole tip of the instrument is movable within a sleeve, permitting contact of the tip with any spot of the larynx. One or two crystals are introduced into the container and locked there. The larynx is anaesthetized with 10% solution of cocaine and the closed instrument introduced into the larynx to the af-

fected part and the container opened, allowing the acid to cover the affected area. Then the container is closed and withdrawn. By this technique the healthy tissues is spared from being burned by the acid. The patient can attend to his business, the treatments being repeated every fourth or fifth day.

Dysphagia and oedematous swelling resulting from tuberculous ulceration can be stopped in a few treatments.

The Treatment of Intestinal Tuberculosis With Codliver Oil and Tomato Juice. M. McConkey, M.D. American Review of Tuberculosis, May, 1930.

The author reports the results in treatment of 50 cases of intestinal tuberculosis with codliver oil and tomato juice during the last three years at the New York State Hospital. The diagnosis of intestinal tuberculosis was determined by positive radiographic findings in the gastrointestinal studies with the barium meal; tuberculous ulceration was diagnosed;—"general hypermotility with complete or nearly complete emptying of the colon in twenty-four hours; failure of the cecum or ascending colon and hepatic flexure to retain the barium; or presence of spasms or filling defect of this portion of the colon.

The author discusses this condition of intestinal tuberculosis as being dependent on the calcium metabolism. Thus, relief of intestinal symptoms is often almost immediate when calcium chloride is given intravenously, and the same relief occurs in a few days or weeks under ultraviolet radiation, or when the patient is being given codliver oil with orange or tomato juice.

The method of administration is simple and few patients object seriously to the remedy. Three ounces of tomato juice are placed in a glass about half the size of an ordinary tumbler. On the surface is floated one-half ounce (a large tablespoonful) of codliver oil. The whole is served ice cold immediately after meals. The patient should be told that slight gaseous eructations savoring of codliver oil may be experienced for the first week or so of treatment, but that they will not be noticeable afterward.

It is without contraindications; is as effective as artificial heliotherapy; it is useful in the after-care of radiated patients who would otherwise be unable to continue treatment at home.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

Metatarsals and Their Injury., Alfred J. Buka, M.D. Pittsburg, Pa. The American Journal of Surgery, Volume IX, July, 1930, page 135.

The author considers this region as one of the most frequently injured. Fractures of the metatarsals go untreated more often than any other bones with the possible exception of the digitis. Fracture-tears or fracture-sprains are a common type of trauma to the foot architecture and their seriousness is not sufficiently evaluated. Relaxation of muscles and ligaments often result from untreated fractures of the metatarsals.

Fractures of the metatarsals occur from direct or indirect force. The fifth is the most susceptible and most frequent metatarsal to fracture. It usually results from indirect force. The others are subject to direct force in crushing blows, etc.

The patient usually gives a definite history of an injury. The foot is very painful and there is swelling, with the pain radiating upward into the muscles of the lower leg and forward into the one or several toes. There is distinct point-tenderness over the fracture site. Crepitus may or may not be present. The X-ray should be used in all cases.

In simple fractures, approximate the ends of the fragments and immobilize immediately from the toes to above malleoli. Never remove the cast before three weeks and then do not allow full weight bearing for one week following same.

In compound fractures, if of comminuted and displaced variety, treat as an infected wound. Give the tissue every encouragement for regeneration and assist with antiseptic treatment. Never amputate or remove fragments unless it is hopeless to save the part, as this can usually be done at a later date. After the compound fracture wound has been rendered clean, the injury merits the ordinary treatment for simple fracture. Do not try to reduce a compound fracture until the complications of infection have been safely overcome.

"A deformed foot is better than no foot and reconstruction work affords the opportunity toward making an unsatisfactory initial piece of conservative surgery more satisfactory."

Vaccine Therapy and Serological Diagnosis in The Arthritides. Reginald Burbank, M.D., New York City, *Journal of Bone and Joint Surgery*, July 1926, Volume 3, page 657.

The author takes up an extensive history of the different arthritic conditions and their relation to co-existing focal infections. The oldest evidence of this was Kramberger's description of typical changes of arthritis deformans coupled with caries of the jaw in the prehistoric man of the Mousterian Period, approximately 100,000 years ago.

In 1265, Bartholomaeus Anglicus, in describing arthritis and gout, said that arthritis is a disease of the blood and must be treated generally and not locally. Since the days of Pasteur, much work has been done upon vaccines therapy and the treatment of arthritis. The use of autogenous and stock vaccines proved disappointing. Non-specific therapy in the foreign proteins was found to be more successful in some cases than the above mentioned. However, in these treatments, only about 30% improved. To overcome this poor result, special work was done by the author, from which was derived his present treatment.

The first step in examination of the patient's blood is to determine its complementary value. For complement determination, he employs anti-sheep cell, hemolytic value of human serum, as broadly this value is an index to the bacteriocidal complementary values. The complementary determination is not only of value in treatment, but also in prognosis. He finds three general classes serologically, (a) Arthritis reacting to hemolytic streptococcus which is the peri-articular type. (b) Arthritis reacting to streptococcus

viridana and belonging to the osteo arthritic or productive forms. In addition to the vaccine prepared from the foci of infection, attention must be paid to general hygiene, patient's resistance, elimination, exercise and massage.

Every patient coming for examination goes through a routine search for foci. Careful urine analysis is done and culture is made of the stool. Autogenous vaccine, when pathological organism are found, are given.

Early Treatment of Congenital Dislocation of The Hip. Prof. Vittorio Putti, Bologna, Italy, *The Journal of Bone and Joint Surgery*, Vol. XI No. 4, October, 1929, page 798.

Dr. Putti contends that there is no reason technical or practical which forbids the treatment of congenital dislocation of the hip before two years of age. This age, that is two years, is and has been accepted by most surgeons as the earliest age that treatment is advisable. The reason for this is:

1. Difficulty in diagnosing the case before the child begins to have the characteristic limp.

2. After two years of age the joint is mechanically more favorable for reduction.

3. It is technically difficult to keep immobilized for many months an infant who has not gained the control of his bodily functions.

By careful examination and by use of the X-ray, he states that the condition can be recognized. He has overcome the third difficulty by use of a special cushion, which can be removed and reapplied each day. This treatment when started early, in most cases, does away with the necessity for an operation. He shows X-rays of twenty-four patients which have been successfully treated. The treatment beginning before the age of two years. One having begun in twenty-four hours after birth.

The greatest aid to the physician is in training the parents to be observing of their children and to bring them in at an early age for medical examination.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

The X-Ray Treatment of Wounds, Leopold Freund, Brit. M. J. 2:449 (Sept. 7) 1929.

The author believes that the beneficial effects of X-rays on fresh and open wounds is not given due appreciation. The patients who have shown a tendency to keloid formation were given small doses of X-ray, instead of stitching or covering the wounds with skin grafts. And good results were always obtained. The rays were used for their destroying influence on the perivascular round cells and spindle cells which play a part of the formation of keloid tissue. The results were also excellent in the treatment of circumscribed patches of lupus vulgaris, epitheliomas and pigmented nevi. The cosmetic results were so satisfactory that the courses of treatment were shortened. This method is not suitable for cases in which the lesion is extensive. Six or seven treatments of unfiltered X-ray in a dose just above the epilation dose, were used.

Dyskeratosis Follicularis Vegetans (Darier's Disease). Fernandez Monserrat and Vazquez, *Rev. med. Lat. Am.* 14:869 (May) 1929.

A thorough study of a case presenting this condition was made by the author, which seems to be the second reported in Argentina. The patient, a young man and a laborer, whose family and personal history had no important data in connection with his skin disease, was admitted to the hospital two years subsequent to the initial skin disease. It was in the form of small, acuminate papules which appeared in the neck, chest and axillary folds, and which later coalesced to form large plaques of verrucous appearance, especially in the axillae, popliteal spaces, and the neck. The rest of the skin was gradually affected until the dermatosis was universal. Many round bodies were demonstrable from the diagnosis of sections which were verified. In this case there were stigmas of syphilis, and the Wassermann test was strongly positive. The authors believe that Darier's disease may be due to syphilis.

Calcium Metabolism in Scleroderma. G. Sannicandro, *Arch. ital. di dermat. et sifil* 4:427 (June) 1929.

The author states that three patients who were suffering from scleroderma and sclerodactilia presented an increased calcium content of the blood and tissues. The author made investigations to determine the explanation of the increased calcium content, but failed to make any connection between calcium increase and scleroderma. A marked improvement resulted in large intravenous injections of hypertonic salt solution with an increased perspiration and softening of the indurated tissues. This improvement may have been due to the retention of water in the connective tissue and to increased elimination of sodium chloride through the sudoriparous glands. Several extracts of glands of internal secretion failed to produce any improvement when they were administered. One case given antisyphilitic treatment was also without result.

Pemphigus Vegetans, R. Ghigi, Arch. ital. di dermat. e sifil. 4:397, (June) 1929.

The author reports a case of this disease in an Italian woman, aged 45. The condition started with intense generalized pruritus and gradually developed typical lesions of pemphigus vegetans in the mouth, axillae, groin and abdomen. The patient improved and relapsed intermittently until she finally died in cachexia, about six months after her admission to the hospital. The author comments on some unusual characteristics of the case reported, such as the beginning after deep moral shock, the intense pruritus before the appearance of the cutaneous lesions and the beginning of the bullae in the mouth and vulva.

Treatment of General Paresis with Malaria. A. Vallejo Nagera, *Progr. Clin.* 37:250 (April) 1929.

The author who had charge of a military hospital of the Spanish army reports the results obtained by him during four years of experience with malaria therapy in the treatment of general paresis. A total of 170 cases were treated, in which he observed a complete remission of seventeen, a partial remission in sixteen, and a great improvement in eighteen, leading to life with their family. No benefit was obtained in seventy-two

cases, and in fourteen cases death ensued during treatment, but not as a direct result of it. The result of the treatment in thirty-five cases is not stated.

Ferrile Body Temperatures as Adjunct Treatment in Wassermann-Fast Syphilitic Patients. L. D. Cody and F. H. Ewerhardt, *Am. J. Syph.* 13:313 (July) 1929.

No consistent evidence that hot baths are useful in Wassermann-Fast patients was the result of an investigation made by Cody and Ewerhardt. Their data suggests that the serologic reactions are rendered more labile during relatively short periods of thermotherapy, but do not prove it. The improvement in the patient's sense of well being and the apparent serologic responses in a few have, nevertheless caused the authors to continue their observations on thermotherapy in Wassermann patients.

Syphilitic Headaches. J. Kopecky, *Am. J. Syph.* 13:332 (July) 1929.

Kopecky says that of 4,300 new medical patients, 882 had syphilis; 632 of these complained of pain, which he regarded as being of syphilitic origin. Headache was the chief complaint of 131, which seemed to be toxic and functional in origin. Evidence of structural changes was present in only a small number. He suggests that all patients with obscure persistent headaches should have the benefit of a painstaking examination for syphilis.

Previous Treatments of Patients Who Have Developed Neurosyphilis. F. E. Weatherby, *Am. J. Syph.* 13:339 (July) 1929.

The author has found that no evidence of treatment with arsphenamine in the early stages of syphilis predisposes to the development of paresis. He has studied 280 cases. He states that paresis usually develops in the undiagnosed, neglected and inadequately treated patients. Patients with an apparent late onset may have had early cerebrospinal involvement and this might have been discovered if they had been examined in early stages of their infection. The cases of tabes and of psychosis with cerebral syphilis did not show evidence of neglect so prominently as it does in paresis, but the majority had no previous treatment. Paresis and other forms of neurosyphilis can develop in spite of malaria at various intervals after syphilitic infection.

BOOK REVIEWS

The Treatment of Skin Disease (In Detail) From Principles and Practice of Dermatology, Volume Three, By Noxon Toomey, M. D., B. A., F.A.C.P., Late Instructor in Dermatology, St. Louis, University, Major and Surgeon, 138th Infantry, Mo. N. G., Dermatologist to the Terminal Railroad, Sometime Editor of the Urologic and Cutaneous Review. 512 pages, Price \$2.50. The Lister Medical Press, St. Louis, 1930.

This volume is subdivided into 45 chapters, these in turn divided into many necessary subdivisions, which cover the complexities and diversities of skin diseases in general. The work is unique in that it contains not a single illustration and perhaps there is nothing remarkable

about this, when it is understood that its efforts are devoted to treatment and not to the illustration of skin diseases.

The diagnosis, management and treatment of skin diseases, even to one who specializes in such work is a baffling matter, to the practitioner, it is more than baffling, and as a rule he promptly refers such cases to the dermatologist, if there is one available. Otherwise the treatment becomes largely a "hit or miss affair."

This work by Dr. Toomey is very thorough and covers the problems met by the practitioner who deigns to treat skin diseases.

Disease Of The Skin. A Text Book for Practitioners and Students. By George Clinton Andrews, A.B., M.D., Associate Professor of Dermatology, College of Physicians and Surgeons, Columbia University; Consulting Dermatologist and Syphilologist to Tarrytown Hospital; to St. John's Hospital, Yonkers; to Grassland's Hospital; and to the Broad Street Hospital, New York City. 1091 pages with 988 illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$12.00 net.

It is the desire of the author in this work to bring his knowledge of skin diseases up to date. He is endeavoring to gather and to present in a lucid and intelligent manner, tried and conservative principles of dermatology with the most recent developments, and to evaluate them and to correlate them into one orderly system. He realizes the difficulties and pitfalls met by those who face the problems of dermatology. This work has unusually fine illustrations and should prove a standard in the hands of the general practitioner, and a great addition to the library of the dermatologist.

The Surgical Clinics of North America. (Issued serially, one number every month). Volume 10. No. 4. (Southern Number—August 1930) 268 pages with 96 illustrations. Per clinic year (February 1930 to December 1930). Paper, \$12.00; Cloth, \$16.00. Philadelphia and London.

The contents of this volume are composed of clinics by Doctors W. D. Haggard, C. Jeff Miller, Barney Brooks, Hubert A. Royster, Urban Maes, Stuart McGuire, Carrington Williams, W. Lowndes Peple, Willis C. Campbell, Alton Ochsner, I. M. Gage, J. M. Mason, (Ivin Abell, R. L. Payne, LeGrand Guerry, G. A. Hendon.

The work is remarkably rich in contributions upon the surgery of arteries and veins. Aside from a wide number of subjects of interest to surgeons, it is noted that the following were deemed fitting of attention: Thrombophlebitis; aneurysm of the axillary artery; aneurysm brachial artery with reconstructive endo-aneurysmorrhaphy; aneurysm sciatic, simulating sarcoma and arteriovenus.

Among the interesting articles is one by Dr. Stuart McGuire, Richmond, Va., on "Medical vs. surgical Treatment of Duodenal Ulcer," and one by Dr. G. A. Hendon, Louisville, on "Open Treatment of Fractures." Certainly both of these contributions should be read by every physician.

Burns, Types, Pathology and Management, By George T. Pack, B. S., M. D., Fellow of the Memorial Hospital, New York City; formerly Professor of Pathology and Lecturer in Minor Sur-

gery, The School of Medicine, University of Alabama; One Time Instructor in Pharmacology and Toxicology, Yale School of Medicine; One Time Assistant in Physiology, Ohio State University; Member American Physiological Society; American Association of Pathologists and Bacteriologists, Etc., and A. Hobson Davis, B. S., M. D., Instructor in Pathology, University of Alabama. 60 Illustrations. Cloth, \$600. J. B. Lippincott Company, Philadelphia and London.

The treatment of burns has become increasingly important within the last few years, especially due to great activities in our steel mills, iron foundries, oil and gas works, and other great American enterprises. What formerly ended fatally is now often handled successfully by use of intelligent, modern means. No condition demands more correct treatment in the beginning than does a burn. This volume takes up the history of burns, classification, tissue changes, symptoms and diagnosis, complications, prognoses and the cause of death. It also considers, among other things, the immediate and systemic treatment and consideration of various types of treatment best fitted to the individual conditions found. The burns considered and those classified as regional burns in their treatment, by electricity, lightening, Roentgen rays, radium, the sun, caustic chemicals, the war gases, the medico-legal aspects of burns and scalds. Most of the work is devoted to skin graft and plastic surgery.

Cancer of the Breast, By William Crawford White, M.D., F.A.C.S., Junior Surgeon to the Roosevelt Hospital, Consulting Surgeon to the New York Nursery and Child's Hospital, Fellow New York Surgical Society. Embossed Cloth, illustrated, 221 pages. Price \$3.00. Harper & Brothers Publishers, New York, 1930.

Harper's medical monographs are always compact, time saving and to the point. This issue on one of the problems of the surgeon and physician, is not an exception. The monograph is composed of 16 chapters, dealing especially with anatomy, physiology, signs, diagnosis, classification, inoperability, roentgen, radium and surgical therapy, types of various breast operations, etc.

Uterine Tumors, By Charles C. Norris, M.D., Professor of Gynecology and Director of the Department, University of Pennsylvania etc., etc., Embossed Cloth, illustrated, 251 pages. Price \$3.00. Harper and Brothers, Publishers, New York, 1930.

This is another of Harper's valuable medical monographs, composed of 6 chapters, dealing with one of the profession's constant and most dangerous problems, for uterine growths are notoriously precancerous and often cancerous from their initiation or development. Neglect of such growth or ineffective palliative measures often merely postpone an evil day, when the matter is beyond control. The subjects are cervical polyps, carcinoma and other malignant tumors of the cervix, carcinoma of the body of the uterus, myoma uteri, sarcoma and allied tumors of the body of the uterus and tumors of the chorion.

Stedman's Medical Dictionary. Of words used in medicine with their derivation and pronunciation, including dental, veterinary, chemical, botanical, electrical, life insurance and other special

terms; anatomical tables of the titles in general use, and those sanctioned by the Basle Anatomical Convention; pharmaceutical preparations, official in the U. S. and British Pharmacopoeias, and contained in the National Formulary, and comprehensive list of synonyms. By Thomas Lathrop Stedman, A.M., M.D., Editor of the "Twentieth Century Practice of Medicine," and of the "Reference Handbook of the Medical Sciences." Formerly Editor of the Medical Record. Eleventh Revised Edition, illustrated, Leather, 1222 pages. Price \$7.50. William Wood and Company, 156 Fifth Ave., New York, 1930.

The Long Trek. Around the World with Camera and Rifle, By Richard L. Sutton, M.D. Sc.D., LL.D., F.R.S. 9Edin. Fellow of the Royal Geographical Society; member of the French Geographical Society; Professor of Dermatology, University of Kansas, with more than 200 illustrations, from photographs made by the author, and by Richard L. Sutton, Jr., A.M., B. Sc., M.D. Fellow of the Royal Geographical Society. Cloth. Price \$5.00, St. Louis, C. V. Mosby Company, 1930.

Dr. Sutton has developed into one of the medical profession's most active African and Asiatic big-game hunters. Before this he has given us two entertaining volumes of his trips to Africa and Asia. This is unique in that the trip was not confined to hunting alone, but much of the space is devoted to artistic work and production of camera and film.

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NUMBER 11

HYPERVENTILATION WITH CARBON DIOXIDE AND OXYGEN IN EARLY BRONCHO-PNEUMONIA

PATRICK S. NAGLE, M.D.
OKLAHOMA CITY

PART I

BRONCHO-PNEUMONIA—DEFINITION AND ETIOLOGY

I am using the term "broncho pneumonia" in a very general sense to designate that picture so frequently seen following surgical operations on the abdomen; under general or local anesthetics. For example, the patient who on the second or third postoperative day shows two to three degrees temperature elevation, respiration increased above 30, pulse increased, coughing, respiratory distress, chest pain, positive lung findings on physical and X-ray examinations and frequently a cyanosis.

I am not questioning the possible importance of embolus, trauma and hypostasis as etiological factors, but am only presenting the atelectatic phenomena as a probable factor in the development of most pneumonites, whether diffuse and lobular or non-diffuse and lobar.

No consideration of the pathological picture is made because I believe the lung in the first 36 hours of broncho-pneumonia has probably a very different appearance than the lung as seen by the pathologist at post mortem.

ETIOLOGY

There are a number of factors proposed as conducive to development of pneumonia post-operatively. Herman Elwyn in J.A. M.A., states that it is most frequent after operations on the gastro-intestinal tract, appendectomies, herniaotomies, and exploratory laparotomies. He enumerates the following:

1. The presence of infection in the respiratory tract at the time of operation.

2. Hypostatic congestion in old and debilitated persons.

3. Irritation of the respiratory tract from too liberal a use of the anesthetic.

These three factors being present, he describes the mode of production as follows:

"Post-operatively, an area of atelectasis occurs, and if bronchitis has been present, it spreads to the atelectatic area as a site of lowered resistance;" and here we have the primary seat of the subsequent pneumonia.

Coryllos and Bernbaum in their report of their experimental work in lobar pneumonia, state: "We believe that pneumonic infection of the bronchial tree, by itself is not sufficient to produce lobar pneumonia—another factor is necessary; namely, occlusion of the bronchia by the pneumonic exudate. This marks the onset of the clinical syndrome in which we find united the clinical features of an acute lobar atelectasis and an acute pneumonic cellulitis."

Coryllos and Bernbaum's technique consisted in the placing into the right lower bronchus of a dog, pure cultures of pneumococcus of varying virulences and the mechanical plugging of that bronchus. Other dogs with the same dose of pneumococcus placed in the bronchus were used as controls. The bronchus in the control dogs was not blocked. The animals were observed, temperature, blood count and respiration, pulse and repeated X-rays made during the progress of the disease. They constantly noticed that when the culture was old and the amount was small, the control dog developed only a mild pulmonary infection, whereas the dog with the plugged bronchus developed a severe and lethal pneumonia.

GENERAL CONCLUSIONS

"There is a new concept of the etiology of the pneumonias which is applicable to the lobar as well as the bronchial pneumonia; i.e.: the initial plugging of some

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part of the bronchial tree, either by an aspirated foreign matter or a localized pneumonic process which generates a fibrinous secretion, tenacious and viscid enough to plug the bronchus in this point, or the spontaneous collapse of a portion or portions of the lung due to a nervous reflex. The plugging of the bronchus is followed by an absorption of the air from the alveolar spaces supplied by this bronchus and the consequent atelectasis of this area. Subsequent invasion of this area by the pneumonic process gives us the fully developed pneumonic cellulitis."

PART II

HYPER VENTILATION

Definition: Hyper ventilation is that procedure in which, by use of a mixture of 5% carbon dioxide and 95% oxygen as an inhalant, an artificial hyperpnea of from 30 to 40 deep respirations per minute, is induced. This differs from voluntary, rapid, deep respiration, in that the hyperpnea is involuntary and due to an artificial agent. In the former, we have a low CO₂ value in the blood stream, in the latter, the carbon dioxide concentration is kept at a high point by its continuous administration.

Technique: The proper mixture of the gasses, i.e., 3% to 5% carbon dioxide and 95% oxygen is delivered to the patient through the mask of any standard gas anaesthetic machine. The re-breather is used and the patient is instructed to breathe as deeply as possible. This procedure is continued until respirations are quite deep and as rapid as 30 to 40 per minute—or until untoward symptoms develop, such as dizziness, headache, fixation of the eyes, increase of the blood pressure to above 175, carpal spasm, (the obstetrical hand) loss of consciousness or convulsions.

The blood pressure must be taken before the procedure is begun and watched closely during the procedure, in order that a development of untoward symptoms may be anticipated and avoided. It is a true and reliable index of the patient's re-action to the procedure. The pulse should be taken before and watched carefully during the procedure. It is well to give the patient who has had abdominal surgery, a quarter grain of morphine before starting the procedure, thus diminishing the pain in the incision; caused by deep breathing.

PART III

INDICATIONS

Recent reports of the use of hyper ventilation as a routine measure following prolonged general anaesthetics, indicate that it should be used routinely as a prophylactic against post-operative, pulmonary complications. It should be used immediately and persistently in all cases of carbon monoxide gas asphyxiation.

It is indicated as a therapeutic measure in post-operative massive collapse of a lung.

Hyper-ventilation is indicated as a therapeutic measure in post-operative patchy atelectasis of the lung, or lobular atelectasis, a condition which I believe precedes the development of the signs and symptoms which indicate a diagnosis of post-operative broncho-pneumonia, that is, hyper-pyrexia, tachycardia, rapid respiration, cyanosis, coughing and chest pain, impairment of the percussion note, inhibition or suppression of the breath sounds over the affected area, bronchial breathing, rales, friction rub, displacement of the heart toward the affected side, and diffuse patchy haziness, of the X-ray picture.

If treatment is started on such a case in thirty-six hours, there is no doubt in my mind but what the development of a frank and generalized, and oft-times fatal, bronchopneumonia, can be prevented.

It is true that frequently the condition does not progress into a definite pneumonia, even if untreated and it is true that bronchi-pneumonia does not always kill the patient, but it appears that probably without treatment, these cases run a more serious course when left alone, than they do when under treatment of carbon dioxide and oxygen.

PART IV

CONTRA-INDICATIONS

This procedure is dangerous in some cases and impractical in others. I will first enumerate them and then discuss them:

1. Hypertension.
2. Epilepsy.
3. In infants.
4. Tuberculosis.
5. High grade neurosis.
6. Well established pneumonia cases with marked consolidation.

1. Hyper-ventilation is impractical and

contra-indicated in a patient who has high blood pressure because the procedure cannot be carried out effectively without elevating the systolic blood pressure to a very high point and thus threatening the patient with cerebral accident.

2. It cannot be used on the patient who is subject to epilepsy or has a tendency to epileptiform seizures because its use is quite liable to precipitate an epileptiform seizure. There is an article in the Archives of Neurology, by J. Fetterman which describes the use of voluntary hyperpnea as a test in epilepsy.

3. I know of no definite contra-indication to its use in the infant, but there is nothing in literature that would justify its use and because of the many unknown dangers in the employment of hyper-ventilation, I do not feel that it should be used in the treatment of pneumonia in an infant.

4. It is obvious that hyper-ventilation would be contra-indicated in a tubercular subject because it is the very opposite of artificial pneumothorax and collapse of the lung, which treatment is at the present time held in such high respect.

5. Hyper-ventilation should be used with great care in extremely neurotic patients, because of their tendency to convulsions.

6. Hyper-ventilation is of course, impractical if pneumonic cellulitis is well established and the consolidation is extreme. There can be no hope of expanding such a lung.

EFFECT ON BLOOD PRESSURE

The effect of hyper-respiration on the blood pressure in man was reported by Swale & Thompson in the Journal of Physiology. From their article it appears that subjects that have a slow pulse would have an increase in blood pressure and a marked coincident increased pulse rate, whereas patients having a rapid or a normal pulse rate would show a lowering of the blood pressure and a delayed acceleration of the pulse rate. This finding is also noted by other investigators and Hill & Flack considered the cause to be an interference to the return flow of blood to the heart.

It is to be noted that Hill & Flack study the effect of hyper-respiration upon the blood pressure and not the effect of hyper-ventilation with CO₂. From this we may expect that their findings would be a bit more inconsistent in that the depth and

rate of the respiration was voluntarily controlled and the CO₂ value in the blood stream would be low. The effect on the blood pressure should be more constant when the hyperpnea is involuntary and due to an artificial agent such as CO₂. In the latter case the CO₂ value of the blood stream would be high.

In all of our cases in which the blood pressure was checked, we found marked and immediate elevation of the systolic pressure. This systolic elevation was most marked in our sixth case in which the blood pressure would be elevated at each procedure from 20 to 50 millimeters of mercury. On one occasion when the procedure was continued until systolic reading increased to 180 millimeters of mercury the patient developed convulsions.

In all cases it appeared that the blood pressure became more and more unstable each time the procedure was repeated; for example, during the first hyper-ventilation, an elevation of 15 to 20 points might be noticed if continuing the procedure for several minutes, but on the last hyperventilation it was frequently noted that the blood pressure would immediately jump 30 to 40 points in the first minute, and frequently before any important hyperpnea had developed.

Case I: Robust white male adult with compression fracture of 10th dors. vr. Under ethylene anaesthesia Albee bone-graft was performed 11-29-29. At 5 P. M. the following day the patient had an elevation of temperature of 100 and increased respiration 25 per minute. The second post-operative day at 7 A. M. this patient had a temperature of 102, respiration of 36 and a pulse of 132. On examination, rales were found at both bases. This patient was hyper ventilated with carbon dioxide and oxygen until he had an hyperpnea of 40 deep respirations per minute. That evening at 8:00 o'clock his temperature was 99, his respirations were 25, his pulse was 98. He was again hyper ventilated for three minutes. The following morning his temperature was 98.8, his respirations were 24, his pulse was 90. He was again hyper ventilated for three minutes. From this time on he ran normal T. P. R. Curve.

Case II: Robust white male 36 years of age, who was operated under ethylene anaesthesia for sub-acute appendicitis, 12-11-29. The following day at 6 A. M. this patient had a temperature of 101, pulse 92, respiration 26. At 6 o'clock he had an ele-

vation of 101.2, respiration 28, pulse 82. At 5 P. M. the second day post-operative he had a temperature of 101, respiration of 28 and pulse of 80. He was coughing and expectorating considerable tenacious mucous and examination of his chest revealed moist rales over the right base. He was hyper ventilated for three minutes. The following morning at 7 o'clock he had a temperature of 100.6, respiration of 28, and pulse of 66. He was again hyper ventilated and that evening his temperature was 100, respiration 28, pulse 88. He was again hyper ventilated for three minutes. The following morning, his temperature was 99.2, respiration 28. That evening his temperature was 99.8, respiration 28, and his pulse 84. He was again hyper ventilated. The following day his temperature fell to normal, his respiration decreased to 18 and his T. P. R. remained normal thereafter.

Case III: Robust white male 35 years old with a compound, comminuted fracture of the distal head of the right tibia.

Under ether anaesthesia, this man's fracture was reduced and lacerations about the face repaired. The following day the patient showed a temperature of 103.4, respiration 28, and his pulse was 120. The following afternoon at 5 o'clock he had a temperature of 102, respiration normal and pulse 120. The morning of the third

day post-operative the patient had a temperature of 103.6, respiration of 28, pulse 140. Upon examination of his lungs it was found that the breath sounds were suppressed and moist rales were present. He was hyper ventilated for 5 minutes. That evening his temperature was 102, respiration 32, pulse 116; he was hyper ventilated for three minutes. The following morning when his temperature was 101.4, his respirations were 34, his pulse 120, he was again hyper ventilated. On the evening of the fifth post operative day when his temperature was 101, respiration 24, pulse 100, he was hyper ventilated for the last time. The following afternoon he still showed a slight elevation of temperature and respiration but continued to convalesce nicely until a final complete recovery.

Case IV: White male adult, 32 years old, operated 12-14-29 under ethylene anaesthesia for interval appendix.

On the following day, he had a slight elevation of temperature and slight increase in respiration and pulse. On examination of his lungs there was some inhibition of breath sounds over both bases. The patient was hyper ventilated once and thereafter ran a normal T. P. R. curve.

Case V: Fairly well developed, fairly well nourished white male 20 years old, who upon falling from a tank suffered a

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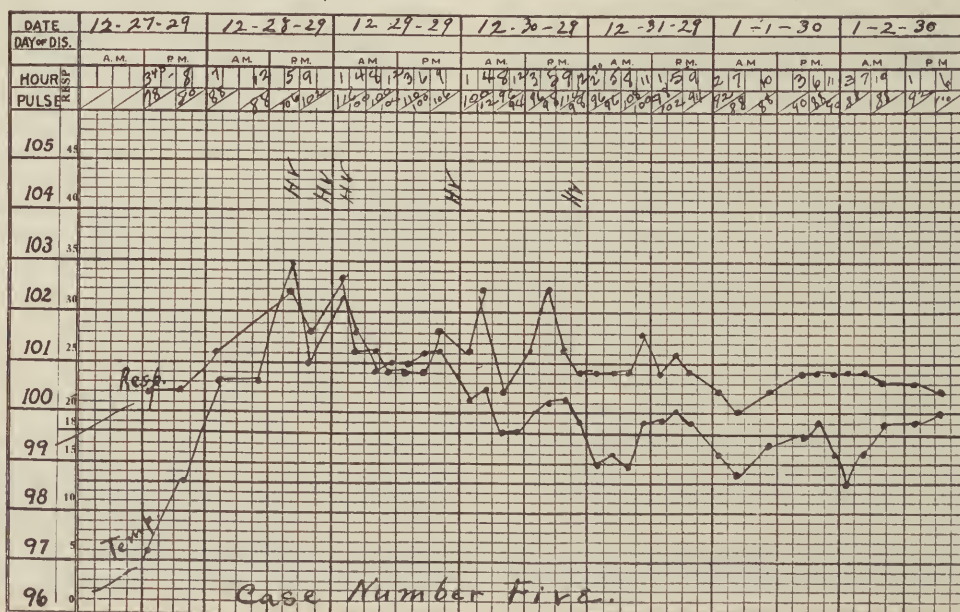
Hospital No. _____

Room No. 100

Name Mr. Edd Hilley

Physician Dr. Don Wudel

Nurse (General) V. M. G. 15



fracture of the 6th and 11th right ribs and a fracture of the left femur three inches above the knee. Under ethylene anaesthesia this fracture was reduced and Boehler's traction applied.

At 5 P. M. the following day, this patient had respiration of 34, temperature of 103, pulse of 106 and physical findings as follows: His respirations were rapid and shallow; the alae nasae would dilate with each inspiration; his lips were cyanotic, he was coughing and expectorating tenacious, bloody mucous. Upon examination of the lungs the breath sounds were found markedly suppressed over the right base and over the left base broncho-vesicular type 2 breath sounds and rales were audible. A bed side plate of this man's lungs was made. This plate showed marked diffuse mottling over both lung fields and a shifting of the heart to the right. It also revealed the fractures of the 6th and 11th right ribs and the line of inter-lobar pleurisy on the right. He was hyper ventilated until he had a marked hyperpnea of 40 for 5 minutes. At 9 o'clock that night his temperature was 101 and his respiration was 28, his pulse 102. At 11 o'clock that night he was hyper ventilated the second time. The following morning he had a temperature of 102, respiration 36, and a pulse of 116. He was hyper ventilated for the third time. That evening at 6

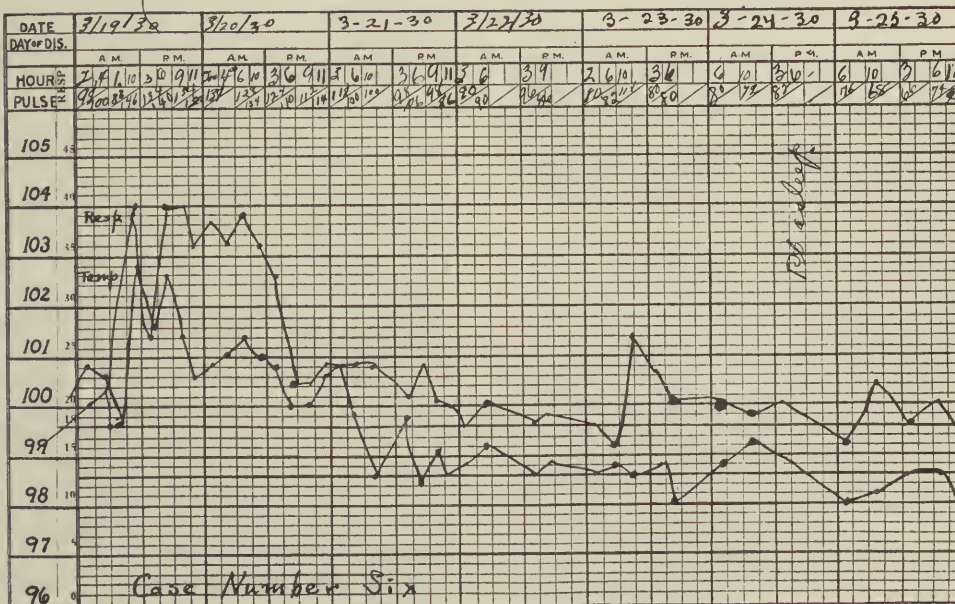
o'clock he had a temperature of 101.2 respiration of 24 and a pulse of 100. He was hyper ventilated for the fourth time. The following morning he had a temperature of 100.2, respiration 34, pulse 112. That evening he had a temperature of 100.2, respiration 25, pulse 114. At this time he was hyperventilated for the fifth time. The following day his highest temperature was 100, respiration 28. A chest plate was made on this day which still showed considerable diffuse mottling of both lung fields. His T. P. R. curve remained practically normal for the next three days when his lungs were again X-rayed. This plate showed marked clearing when compared to the previous plate but still showed some diffuse involvement of both lungs. This persisting involvement is quite probably due to tuberculosis, because since that date it has been noticed that this patient has run a low grade daily fever.

Case VI: Patient was a young woman twenty-five years of age, rather obese and an habitual smoker of cigarettes. A pelvic operation had been performed under general anaesthetic. I saw her the evening of her first post-operative day.

Examination: Patient was lying in bed, suffering evident respiratory distress—respirations were quite rapid, very shallow and labored. There were audible tracheal rales. There was definite cyanosis of

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Hospital No. 62192Room No. 215Name Mr. RichardPhysician Dr. LongNurse Shaw

the lips and finger nails. Her temperature was 104; her respiration was 40; her pulse was 140 and her blood-pressure was 118-78.

Examination of the right lung revealed no definite impairment to percussion. Breath sounds were heard normally along the axillary line as low as the ninth rib at which point there were persistent moist rales. Examination of the left lung: The percussion note was impaired three plus on the grade of four in the axillary line. Breath sounds were entirely suppressed. Friction rub was heard in the axillary line and posteriorly. Anteriorly, the breath sounds were broncho-vesicular type II in character and accompanied by persistent moist rales.

The heart was displaced to the left, the apex beat being palpable in the sixth inter-costal space anterior axillary line. Cardiac dullness was shifted to the left.

Diagnosis: Massive atelectasis of the left lower lobe with coincident early broncho-pneumonia.

This patient was hyperventilated with carbon dioxide and oxygen for four minutes. Following the procedure the patient expectorated some mucous, the cyanosis was cleared, respiration was less labored and deeper and the patient experienced some relief of her subjective discomfort. The blood pressure was elevated to 155 systolic. The following day, the patient was hyperventilated at 7:30 A. M., and at 11:30 A. M., a marked increase in blood-pressure being noted each time. At 6:30 the same day, her temperature was 100, pulse 108, respiration 22 and blood-pressure 120 systolic. At this time, the patient was not cyanotic, breathing was easier and had little or no subjective discomfort, and in general was very much improved. The patient was hyperventilated for three minutes with carbon dioxide and oxygen.

The procedure was interrupted by a generalized tonic seizure which was followed immediately by a brief clonic convulsion. The first evidence of this convulsion was the rolling of the eyes laterally with fixation. Administration of carbon dioxide was stopped at this point but the progress of the convulsion was not interrupted. The blood pressure taken during the seizure was 180 systolic. Patient rallied immediately and stated that she felt fine.

Examination of the lungs revealed no

evidence of consolidation. The first time, procedure was discontinued when the blood-pressure was elevated to 118 systolic and the patient complained of dizziness. The second time, the procedure was discontinued when the blood pressure was elevated to 150 systolic and pulse fell to 92. Examination of the left lung at this time failed to reveal impairment of percussion note. Breath sounds were normally present over the entire lung field. This was the last hyperventilation and the patient made an uneventful recovery. It appeared that this patient's blood pressure became more and more unstable with each repetition and procedure. The last three procedures were necessarily very brief because of the immediate rise in blood pressure.

CONCLUSIONS

1. The atelectatic phenomena is an important factor in the development of post-operative pneumonia.
2. Hyper-ventilation is a valuable agent in the treatment of early post-operative atelectasis and broncho-pneumonia.
3. Inhalation of carbon dioxide causes an immediate marked elevation of blood pressure.

DISCUSSION: *L. J. Starry, M.D., F.A.C.S., Oklahoma City*

In the evaluation of recent advances in surgery the newer conception of post-operative pneumonia as post-operative atelectasis should be placed at or near the top of the list. None of us but have been distressed at the appearance of such patients on the first or second post-operative day. Usually our medical friends are called in to equalize the burden and in the majority of cases heretofore the combined efforts are not productive of the hoped for results. Altho these are strictly medical deaths it is the surgical mortality lists which carry them.

It has been my pleasure to note the effects of hyper-ventilation on one of my patients. Gentlemen, it is indeed remarkable to notice the change in both general appearance and physical signs—temperature, pulse and respiration all responded very promptly to the hyper-ventilation. It is my firm belief that thru this method of treatment an increasingly large percentage of patients suffering from post-operative atelectasis and pneumonia will be returned

to health. The paper is an extremely practical one and in my opinion very timely.

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THE CARE AND CLASSIFICATION OF THE INSANE*

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Since insanity has been recognized from time immemorial, it might be well to give a brief historical review of the care and treatment of mental cases before taking up this subject. I shall relate a few interesting facts taken from "A Text-Book of Psychiatry" by Henderson & Gillespie.

Early records of the Egyptians refer to mental disturbances as far back as 1500 B.C. Senility was described as "A condition wherein the heart grows heavy and remembers not yesterday." Arteriosclerosis has been demonstrated in dissection of mummies. The Biblical description of Saul, David, and Nebuchadnezzar are the first authentic cases of mental disorders recorded. Epilepsy was known to the ancients as the Sacred Disease, and was the type of mental trouble with which they were especially familiar. Plato's Republic contains the earliest reference to the treatment of the insane, in which it says, "If anyone is insane, let him not be seen openly in the city but let relatives watch over

him in his home," and if they are negligent let them pay a fine." In the time of Hippocrates it was believed that a disturbed mind was relieved by hemorrhoids and varicose veins.

Starving, flogging, and chains were accepted methods of treatment about the first century B.C., and I believe similar methods were used in the early history of the United States. In 1320, lunacy legislation appeared in England, when it was enacted that the property of lunatics should be vested in the Crown. In 1403, Bethlem, in London, was the first place of care for the insane.

In the seventeenth century, Lydenham prescribed for "mania" a cordial which contained the flesh and blood of vipers and sixty-one other ingredients; canary wine and honey, to be given three times a day. He also advocated bleeding. In Paris, Dr. Dennis employed the transfusion of blood in a love-sick youth, with fatal results.

In the next century the treatment of King George III, who was subject to periodical mental disturbances, aroused great indignation throughout the British Isles. He was under the care of a Dr. Willis, who had the management of a private house, and the King was treated with little respect. There was no hesitation in knocking him down, applying blisters and the strait-jacket. A committee was appointed by the House of Lords to inquire into the matter, and greater public attention was consequently called to the care of the insane throughout the country.

The modern era of the care and treatment of the insane begins at the end of the eighteenth century, and is divided into three periods: 1st, the period of humane reform; 2nd, the introduction of non-restraint; and 3rd, the hospital period.

In 1792, Pinel liberated more than fifty patients in less than a week, some of whom had been in chains for thirty years or more. He provided fresh air, light, freedom and occupational departments. Cases that were unmanageable in darkness and dungeons showed marked improvement in health and behavior.

Many changes were made throughout Europe to improve the condition of the insane in the early part of 1800. For instance, in 1815, an investigation at the York Asylum revealed that there had been great neglect and cruelty, only 221 deaths having been reported out of the 365 that

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had occurred. One patient was killed, and his body disposed of to avoid inquest. Two sets of books were kept to aid in the duplicity.

Dr. Monroe, the superintendent of Bethlem, was questioned about the treatment and replied, "Patients are ordered to be bled about the latter end of May, according to the weather, and after they have been bled, they take vomits once a week for a certain number of weeks; after we purge them. That has been the practice invariable for years, long before my time." Strait-jackets were not used as irons were considered safer. Patients were chained nude to the benches; male attendants were in charge of female wards, and the immorality which existed is beyond description.

In 1837, the abolition of restraint was initiated by Gardiner Hill and Charleworth, in England, and at about the same time by Bond, Kirkbride and Rush, in America. Dorothea Lynde Dix was perhaps the most striking personality of this time. Although handicapped by ill health, she founded approximately thirty-one institutions. She made a trip to Scotland and visited many hospitals, and while the majority were well conducted, she found some badly mismanaged. Naturally, she met with great opposition and was called the "American Invader." However, she was able to accomplish within a few months what others had tried to do for years.

At the present time, in the town of Gheel, in Belgium, feeble-minded children are kept in the homes and treated as the children of the family, being taught whatever occupation they are capable of learning. This is the village plan, and holds great possibilities.

The administration of hospitals for the insane has steadily improved, and I am sure you are all familiar with the modern insane hospital of today.

To commit an insane person to an insane hospital in Oklahoma, it is first necessary for someone to file (with the County Judge) charges of insanity against the individual—this may be done by a relative, neighbor, or an officer other than the County Attorney, or an employee of the hospital. The County Judge then has the authority to appoint two physicians registered in the county to make a mental examination and to return a written report of their findings to him. If the per-

son examined is found insane, the Judge makes out an order of commitment, which is turned over to the sheriff of the county, delivers the patient to the hospital or deputizes someone to do so. Quite often a relative is deputized. If the patient is a female, she must be accompanied by relatives or a female attendant—the reason for this is obvious.

We often receive patients who on superficial examination show no signs of mental disease, and who frequently have convinced the accompanying officer that they are victims of a conspiracy, usually among their relatives. Thus the officer tells us of the injustice that has taken place, and urges that we take particular interest in the case—already having told the patient that the charge is an outrage and that the doctors will send him home, almost, if not as soon as he is received. I am sure I have never seen a single instance of this kind in which both the patient and officer were not mistaken.

Each patient must be received by a physician, and a return receipt given to the officer. When the patient is received his condition is observed and information is obtained as to attempts or threats of suicide, violence, etc. He is weighed and measured, and if not in bad physical condition, is taken to the receiving ward. Here his temperature is taken, and all his clothing placed in a bundle to be sent to the marking-room where the clothes are marked with his name and ward, and then returned to him. Money and other articles are removed, recorded and turned in to the main office where they are again recorded and placed in safety. The patient is bathed, closely examined for vermin, scabies, scars, bruises and other injuries, and a record made and placed in the files with his history. He is then placed in bed for twenty-four hours or longer, if necessary. His physical condition permitting, he is then allowed to dress and associate with other patients. A specimen of urine is saved the first night and sent to the laboratory; a blood Wassermann is made the first week and if indicated, a spinal the next week; typhoid vaccine is given each patient under fifty years of age and each patient is vaccinated for smallpox. The urinalysis and blood test are routine.

Meanwhile a physical and neurological examination is made on the ward and recorded. A mental examination is made as soon as the patient's condition will permit or as soon as the staff is able to do so.

If the patient is a suicide, his attendants, both day and night, are so informed and as long as he is thought to be active, "suicide" is written on the daily ward reports, directly after his name—this keeps the fact fresh in the mind of those responsible for him. It is remarkable how few suicides we have had of the hundreds that were so classified. Only one has occurred in the past six years, and this took place under the eyes of the attendants, in spite of the fact that every precaution was taken to prevent it.

If the patient is old and feeble, he is soon transferred from the receiving ward to one suiting his condition. If sick, he is sent to one of the hospital wards where efforts are made to diagnose and cure his physical condition, as in a general hospital. After a cure is effected, he is again transferred to a ward best fitted to his needs.

All wards keep a daily report of each patient, giving his behavior, occupation, illness and the like, this record being turned in to the Superintendent each morning and filed as a permanent record. Also a monthly record is kept of each patient which gives his behavior, illness, medicine taken, days ill, weight at the beginning and the end of the month—this record being filed with his history on the last day of the month. Injury blanks are kept on all wards which in case of injury must be filled in forming a complete record as to how the injury occurred and giving a description of the injury, and the name of the attendant in charge at the time. These blanks must be taken to the superintendent's office immediately, failure to do so being a cause for dismissal from the service.

Of course, occupation is important in the treatment of most mental cases. We make an effort to get the patient interested in anything at all, checkers, cards, sewing, or what not. An occupational department is maintained and many cases are sent there who at first are unable to do other than unravel a sock or wind a ball, who eventually are re-educated and able to do beautiful work. The women are placed in the kitchens, laundry, sewing-room, and on the wards. The men are employed on the lawns, the greenhouse, farm, powerhouse, laundry, carpenter shop, etc. If a patient can be put to work and become interested in his work, progress is being made.

You may be interested in the violent cases, for as you know, many of the laity think of insanity only in the disturbed state. Each patient has to be observed and prescribed for individually. Hypnotics are used rather freely when needed, however, habit-forming drugs are used as little as possible and then only when everything else has failed. Paraldehyde and luminal usually will quiet most cases. Altho morphine and hyoscin are given unhesitatingly in the very badly disturbed, I am sure many cases would die from exhaustion if hypnotics were not given when needed.

Hydrotherapy is probably the most valuable treatment for the disturbed. Tubs with running water, automatically heat-controlled, can be used over long periods of time. We think it best not to leave a patient in a tub over eight hours at any one time, replacing him after an hour's respite; some hospitals, however, keep them three and four weeks, both day and night. The temperature of the water should be 94 degrees in the summer and 96 in the winter.

Neutral packs are very beneficial: the patient is wrapped in sheets wrung out of water at about 68 or 70 degrees and then two dry blankets are wrapped around him. He is then placed in bed or on a table made for that purpose, and ice packs placed under his head. This treatment works wonders in many cases and benefits the majority. The patient should be watched closely, and if very restless taken out after an hour, or wet with water 68 or 70 degrees frequently, as the body causes the pack temperature to rise rapidly. All hydrotherapy must be used with *care*, and the condition of the patient closely observed, altho I have never seen alarming results occur.

The treatment of pellagra constitutes quite a percent of the cases in this section of the United States, and as a correct diet effects a cure, most of the cases recover, especially if not in a dying condition at the time they are received.

Syphilis of the central nervous system is always an important part of any State hospital and remarkable advancement in the treatment of these cases has taken place in the past ten years. Ten years ago we told relatives there was no cure for general paralysis, and that two or two and a half years would undoubtedly be as long as the patient could live. Now, with the new arsenicals, malaria, etc., it is quite a

different story. Although the prognosis of any case of general paralysis is unfavorable, many cases undoubtedly are cured, and a majority improved.

Right here I would like to drop back one hundred years and give a couple or three illustrations of the treatment of the insane at that time.

About five years ago Dr. Neer gave me a book by Rush on the mind. This was the great Benjamin Rush and the book was printed in 1835.

Referring to the treatment for morphine addiction, he claimed that terror by the concussion it gives to both the body and the mind sometimes cures this disease. A lady in New York, a habitual user of opium, was cured by the following remedy administered by the hand of her physician. On one of his visits he took a large snuff box out of his pocket, she looked at it as if she wanted a pinch of snuff; the physician put it into her hands, when upon opening it, an artificial snake that had been coiled up in it suddenly leaped upon her shoulder. She was convulsed with terror and from that time on left off the use of opium, altho she lived forty years longer, dying at the age of eighty.

Cases with suicidal tendencies were often easily cured in those days. The following is told by Dr. Rush. A young man patient in the hospital kept asking for a pistol with which to kill himself. He was told the firing of a gun would disturb other patients, but that his life could be taken more easily by bleeding him to death from a vein in the arm. The man consented at once to this, and the resident physician was ordered to bleed him to death. A vein was opened and after losing twenty ounces of blood he fainted, became calm and slept soundly. The next day, however, he was still unhappy, not from despair and hatred of life, but from the dread of death, for he now had the idea that several persons in the hospital had conspired to kill him. By the continuance of depleting remedies he was finally completely cured.

Another maniac in the Pennsylvania State Hospital expressed a strong desire to drown himself. Mr. Higgins, the steward of the hospital, seemed to favor this wish and prepared water for the purpose. The patient undressed himself and eagerly jumped into it. Mr. Higgins endeavored to

plunge his head under the water in order to hasten his death. The maniac resisted and declared he would prefer being burned to death. "You shall be gratified," said Mr. Higgins, and instantly applied a lighted candle to his flesh. "Stop! Stop!" the patient cried. Never afterwards did he attempt to destroy himself or even express a desire to die.

The diagnosis of cases is often quite difficult. Before a mental examination is begun the examiner should have at hand a complete physical and neurological examination, the family history, personal history, and a history of the present attack. The personal history is especially important. Before going further, the question may arise as to what we are attempting to find out. The answer is to find if the patient is insane, the form of insanity and the etiology. Again the question arises, what is insanity? Lord Justice Blackburn once said, while giving evidence before a committee of the House of Commons, "I have read every definition which I could meet and never have been satisfied with any of them, I have endeavored in vain to make one satisfactory to myself, but verily believe that it is not in human power to do it." Nevertheless, it often becomes necessary, especially in court proceedings, to give a definition. A great many men have written their ideas but I will only give a couple that have often been used. "So distracted in his mind to endanger his life or property, or the lives and property of others." Another often used by Peterson, "Insanity is a manifestation in language or conduct of disease or defect of the brain."

We have the patient presented at clinic by one of the staff. All questions and answers are taken down by a stenographer and from the answers to the questions, the history, the neurological examination and the behavior a diagnosis is made. Our classification is the one standardized and used in all state hospitals, and is too long to discuss here. However, before closing, I would like to call your attention to an outline which I believe mainly originated with Ebaugh of the Colorado Psychopathic Hospital, in Denver.

If I succeed in getting the problem of insanity before you clearly, you will probably view the condition in a different light from what you have heretofore considered it.

CLASSIFICATION OF REACTION TYPES

| INDIVIDUAL—Plus (What pt. has to react with) | SITUATION—Leads to (What pt. has to react to) | REACTION— (Adjustment—Normal behavior— Maladjustment—resulting in): |
|--|---|---|
| A. PHYSICAL 1. Body type 2. Features. 3. Physical defects 4. General health B. INTELLECT 1. General level 2. Intelligence quotient C. HABITS 1. Capacity for habit formation 2. Personal and social habits 3. Industrial habits 4. Drugs, etc. D. INSTINCTS 1. Self-preservation 2. Race-preservation 3. Herd E. EMOTIONS 1. General Emotional tone 2. Drive 3. Stability | A. TOXIC FACTORS 1. Focal diseases and infections 2. Drugs 3. Alcohol B. ORGANIC FACTORS Definite brain changes to explain mental disorders; syphilis and various degenerative neurological conditions, epilepsy, cerebral trauma, etc. C. PSYCHOGENIC FACTORS External: Environmental factors, Home surroundings, financial loss, worry, economic stress and strain, etc. Internal: Disturbances of inner mental life. Repressions, conflicts, reaction to broken engagements, sex episodes, etc. | A. SEVEN MAIN TYPES OF PSYCHOSES 1. Organic Reaction Type: a. General paresis b. Senile deterioration c. Cerebral arteriosclerosis d. Traumatic psychosis e. Epilepsy, etc. 2. Delirious and Hallucinatory Reaction Types (toxic psychoses) a. Alcoholic psychosis b. Psychosis due to drugs and other exogenous toxins c. Psychosis with somatic diseases. 3. Paranoid Reaction Types 4. Affective Reaction Types (manic depressive or reactive) a. Depression. b. Excitement c. Anxiety 5. Psychoneurotic reaction a. Hysteria b. Psychasthenia c. Anxiety neurosis d. Hypochondriasis e. Chronic invalidism f. Other types 6. Primary Constitutional Reaction Types. a. Psychopathic inferior b. Mental deficiency 7. Schizophrenic Reaction Types (Dementia-praecox) B. RESULTS After treatment—1st year, 2nd year, 3rd year, 4th year, 5th year. |

I regret I cannot throw this formula on a screen for you to study, as it is difficult to explain without something to which I can refer.

We have three points with their subdivisions to consider. There is the individual, the situation and the reaction. The individual must meet the situation and this leads to reaction. The things with which the individual reacts, namely,—the physical, intellect, habits, instincts and emotions, meet the situation consisting of toxic, organic and psychogenic factors.

The individual, (what he has to react with) meeting the situation, (what he has to react to) leads to a reaction. The reaction may be adjustment to the situation and normal behavior or maladjustment, resulting in the seven types of psychoses as given above.

A DISCUSSION OF THE PHYSIOLOGY AND PHARMACOLOGY OF THE VEGETATIVE NERVOUS SYSTEM*

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The nervous system of vertebrates may be divided into a sensori-motor system and vegetative system. The sensori-motor system regulates the relations of the individual with his environment. Through the various sense organs and nerves, both somatic and environmental impressions are

received and recorded. The motor mechanism controls the so-called voluntary muscles in their various functions. Through them, the position of the body is maintained, and the extremities are brought into action and this action controlled for various definite activities.

The vegetative nervous system controls reproduction, nutrition and growth; it controls such functions as digestion and circulation. This system consists of ganglia and nerves located in the spinal cord and brain, and outside the central nervous system. It is subject to various forms of stimulation—mechanical, chemical and psychic.

There are located in the lower spinal cord, vegetative centers of reflex character, for the control of the urinary bladder, genital organs, sphincter-ani, large intestines, and, for the blood vessels of the pelvic organs and lower extremities. There are two definite bladder centers. That for closing the outlet of the bladder is located in the eleventh and twelfth dorsal segments, and in the first and second lumbar segments. The center for emptying the bladder is in the lower sacral cord. The

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upper center is associated with the bladder through a system of afferent and efferent nerves, from the inferior mesenteric ganglion, through the hypogastric plexus.

The ratio of afferent to efferent nerves is one to ten, which explains why the bladder is not very sensitive to ordinary stimuli.

The emptying of the bladder is under the control of the pudic and pelvic nerves, through the sacral plexus. The ratio of afferent to efferent fibers in the pudic and pelvic nerves is one afferent to two efferent. The normal stimulation of these reflex centers is mechanical. A full bladder sends afferent impressions to the upper and lower centers; the sphincter is stimulated to relax, the musculature of the bladder is stimulated to contraction, resulting in a normal emptying of the bladder. It may be stimulated to activity by psychic influence.

For the proper functioning of these lower bladder centers, there must be no interruption between these centers and the higher nerve centers, or, between the centers and the bladder. It is possible, however, in high cord lesions, in which there is complete interruption between the higher nerve centers and the lower cord centers, for the bladder centers to develop an automatic activity, which results in a regular emptying of the bladder—what is known as an automatic bladder.

The center for the genital organs is in the lumbar and sacral cord. There is also a center for sexual impulses located in the brain. These centers control the activity, circulation, etc., of the genital organs, through afferent and efferent nerves in the hypogastric and sacral plexus. These centers are influenced by mechanical, chemical and psychic stimulation.

The center for the sphincter-ani is in the lower sacral cord. This center also responds to mechanical and psychic influences, causing either inhibition or contraction of the sphincter-ani.

The center for the control of the blood vessels of the pelvic organs and lower extremities is in both the lumbar and sacral segments. It controls the tonus of the blood vessels of the lower extremities, uterus, bladder and large intestines, yet the tonus of these vessels does not entirely disappear, even after destruction of the brain and spinal cord.

There are also located in the dorsal and lumbar segments, sweat gland centers, for the lower extremities. These centers respond to stimulation by alteration of the blood mixture, or, by a rise in the body temperature, choking and nicotine poisoning, and, in some cases, by reflex stimulation.

It has been demonstrated by Vulpian that the medulla is not the only point of origin for vaso-motor nerves and their tonus. The cord also transmits vasoconstrictor and vasodilator reflexes. The entire extension of the grey matter of the medulla and cord probably gives origin to vaso-motor nerves and their reflex centers. The cervical cord contains vascular nerves, but no vascular nerve centers. Vascular nerve centers are present in the dorsal cord, lumbar cord, sacral cord and medulla.

Vegetative fibers do not come from all segments of the brain stem and cord; segments are located at the points of origin of the vegetative nerves. These origins are in the brain, in the area of the occulo-motor, fascialis, glosso pharyngeal and vagus nerves, and in the entire dorsal, upper lumbar and sacral cord.

There is a different center for ejaculation and erection. Thomas localized the pilo-motor centers in man, from the first dorsal to the second lumbar segments. It can, perhaps, safely be assumed that all vegetative centers have their segmental centers in the brain stem and cord. The cord is important for the regulation of vegetative processes, yet each individual part takes care of itself.

Goltz and Ewald in 1896 demonstrated that dogs may live indefinitely with no trophic disturbances, inflammations or swelling, with all of the cord removed below the cervical segments. After a short period, the tonus of the cordless animal returns, the intestines function, urine is voided regularly, delivery and lactation proceed normally. Immediately following removal of the cord, there is a temporary paralysis of the organs, probably due to shock.

The vegetative system has stimulating and inhibiting functions, such as vasoconstrictor and vasodilator functions, contraction and dilatation of the heart, musculature of all hollow organs, and orificial sphincters.

According to Bayliss, the vasodilators

are in the posterior roots—are not efferent but identical with the sensory fibers, and he considers vaso-dilatation as an antidromic process. He found that, after extirpation of the abdominal ganglinated cord and stimulating the vagus centrally, there was vascular dilatation of the lower extremities. He assumed that this, too, was an antidromic reflex. Such an assumption would presuppose the passing of an impulse in the nervous system, from a cell, through the axis cylinder, back to another neuron, or in the opposite direction from the normal course of impulses.

Cardio-inhibitory centers have been located in the brain stem. Inhibitory centers for pilo-motor and gland secretion have not been definitely located.

Porter concludes that the vaso-motor and vaso-reflex have different mechanisms, as he found that the reflex was increased by curare and inhibited by alcohol.

The influence of the vegetative segmental centers upon the organs which they enervate, comes from three groups of stimuli. These stimuli are the regulating influence of the higher vegetative centers, afferent stimuli from the periphery, and the alternating composition of the blood and tissue fluids. The influence of the higher vegetative centers is exerted, mainly, through the segmental centers. In these spinal cord segments are also individually represented, the somatic sensori-motor elements.

The vegetative system is not so individually represented in the segments of the cord and brain stem. There it is necessary to interpolate the peripheral ganglia. The influence of segmental centers is far more reaching in effect, than the higher vegetative centers on individual directed innervation.

From the segmental centers, come sympathetic and parasympathetic impulses; from the higher centers, come general directive impulses, which are elaborated on, individually, in the segmental centers. Investigations of the relations of the mid brain to the vegetative nervous system, have been concerned chiefly with its effect upon the smooth musculature and glands, and a study of the complicated processes in organs enervated by the vegetative nerves.

Faradic stimulation to the base of the mid brain produces irritation phenomena

of the ocular sympathetic, vaso-motor disturbances, general increase of blood pressure, contractions of the bladder, sweating, secretion of tears, saliva and mucous membrane glands.

If the electrodes are placed posteriorly to the optic tracts at the base of the brain, the cervical sympathetic is stimulated, the pupils dilated. It has been proven that impulses from the frontal lobe to the cervical sympathetic pass over the hypothalamus and, that the hypothalamus exerts its influence on the vegetative organs, independently of the cerebral cortex. This fact proves that the hypothalamus is concerned with centers, and not with tracts.

Karpus and Kreidl believe that the hypothalamus is interpolated as a central mechanism, for vegetative functions. They also found that the subcortical vegetative centers are not limited to the hypothalamus, or mid brain, but also extend into the area toward the lenticular nucleus.

It has been proven that the influence of the hypothalamus centering on the cervical sympathetic, is bilateral.

Stimulation of the hypothalamus results, not only in excitability of the ocular sympathetic, but an inhibition of the sphincter branches of the oculo-motor. It has been proven that the oculo-motor does not alone regulate the movements of the iris cutting the oculo-motor and stimulation of the peripheral branch, or on stimulation of the cortex, or hypothalamus, causes dilation of the pupil.

The hypothalamus has been proven to be an important reflex center. It has also been proven to be both a pain transmitting mechanism, and an important pain center. Schottenback observed that, after destruction of hypothalamus on one side, there was a permanent homolateral contraction of the pupil—a breathing and vaso-motor disturbance. The breathing was delayed and deeper. He concluded from these symptoms that the hypothalamus is the mechanism that innervates the breathing act, and the blood vessels. Leschke injected tetra-hydronaphthylamine, and the result was an extraordinary contraction of the blood vessels, with an extreme rise in temperature, but, on cutting through the mid brain, these effects could not be obtained.

Dresel concluded from his experiments on animals, that (1) in the subthalamus, there are vegetative centers, which influence the blood pressure; (2) these centers

regulate the blood pressure, in such a manner, that in hypertension, a reduction is brought about by stimulation of the parasympathetic, and inhibition of the sympathetic. In low blood pressure, an increase results from stimulation of the sympathetic and inhibition of the parasympathetic. This keeps the blood pressure on a constant level. (3) A vegetative center, important for the blood pressure, is found in the striatum and paleostriatum. (4) This center is responsible for the height of the blood pressure, in that it regulates the subthalamus center. By an increase, due to stimulation of the paleostriatum, the mid brain reacts toward lowering the blood pressure. (5) It appears that the neostriatum has an inhibitory influence over the paleostriatal blood pressure centers.

A stimulation of the hypothalamus will bring about a contraction and emptying of the bladder.

Heat regulation is, perhaps, to some degree, a function of the entire nervous system, but these processes are largely under the influence of the vegetative nervous system. Injury to certain portions of the nervous system, without doubt disturbs heat regulation. It has been proven that the tuber cinereum is indispensable to regulation of body heat. Application of cold to the corpus striatum causes a rise of body temperature, and of heat, a lowering of body temperature. That the cerebral cortex exercises considerable influence over heat regulation, has been well proven. The principal heat-regulating centers, however, are in the hypothalamus and the striatum. There is assumed to be a heat and cooling center, which is in harmony with a contrasted regulation of the higher vegetative centers, for the individual vegetative functions. The higher vegetative centers take part in all metabolic processes.

Claud Bernard observed that a circumscribed lesion in the floor of the fourth ventricle, caused an increase of sugar in the urine and polyuria. More recent experiments on metabolism, have established a sugar center in the medulla. Various investigators believe that, within the dorsal vagus nucleus, there are vegetative cells, which enervate the suprarenals for sugar mobilization, while in the ant-part, are vagus cells for the pancreas, which control glycogen formation. They also concluded that in the striatum, are superordinated centers, over the subthalamus cen-

ters, which regulate the height of the blood sugar.

Leary also assumes that, in the vegetative medulla nucleus, there are present, in a small space, cells for the suprarenals, for breathing, for the heart-beat, nutrition and metabolism. He believes this system has its caudal central representation in the vegetative oblongata, and its most oral representation in the striatum. A center for fat metabolism and sexual atrophy in the mid brain, has been well established, and a center for the sexual function is assumed; emotion and instinct also have centers in the mid brain.

That there is a close relationship between the vegetative nervous system and the internal secreting glands, has been well proven. An alternating composition of the blood acts on the excitability of the vegetative centers, and the internal secreting glands exert an influence upon the chemical composition of the blood. The influence of the internal secreting glands on general metabolism is of considerable importance.

The tonus of the body is influenced by the vegetative centers. This is especially true of the vegetatively enervated organs. Normal sleep and disorders of sleep are, to some degree, related to the vegetative nervous system. The regulation is assumed to be in the brain stem. The phenomenon of sleep is also assumed in the changeable effects between the brain stem and the cortex.

Maunthner concluded, in 1890, that sleep is essentially an interruption of stimulation to the cortex and the central gray matter is where the interruption takes place. He pointed out that hypnotics inhibit the central gray matter, and narcotics stop the function of the cortex.

Economo considers the vegetative apparatus as the essential sleep-regulating mechanism; that the normal periodic changes between wakefulness and sleep are a vegetative function of the entire organism; that in the transitional or between the interbrain and mid brain is the sleep-regulating center which is active during sleep and waking periods. Inflation of the third and lateral ventricles will produce somnolence. Lesions of the corpus striatum—as in lethargic encephalitis—will produce prolonged somnolence.

The subcortical vegetative regulating mechanism is, to some degree, under the

control of the cortex, and, there is no doubt that our entire animal life, including the activity of the cerebral cortex, is under a vegetative influence.

There are many conditions which determine the susceptibility of various parts of the body to toxins. Some of these conditions are the concentration, quality, penetration and duration of action of the drug, the tonic state of the affected area produced by the central organs, and on the existing state of irritability conditioned by the fluid mixture, in which the acidity or alkalinity, and the increase or diminution of promoting or inhibitory salts and hormones play an important part.

Drugs may be classified as sympathicotropic, vagotropic, and amphotropic in type. There are many external influences capable of modifying and influencing changes in the vegetative reactions, and of the psychic condition. Among these influences may be mentioned: light, air, external temperature, quality and quantity of food, hunger and thirst, rest and work, and the changes—both physical and chemical—and hormonal composition of the blood, and fluids; also, the psychic state. The therapeutic results obtained by the administration of irritant bodies. Fever, therapy treatment with hormones and vitamins, must be credited largely to the alteration in the vegetative nervous system. In order that the vegetative life may properly be adjusted to the constantly changing somatic and external conditions, there must ever be change in tonus and irritability of the vegetative nervous system.

The irritability of the vegetative centers, lying mostly in the mid brain, is determined by centers at a higher level, and, by the hormonal glands, especially the posterior lobe of the hypophysis, the supratuberal hypothalamus area and the tuber cinereum. From these areas, secretions are thrown into cerebro-spinal fluid, which affect the blood pressure and uterus. They control the state of irritability of the vegetative centers in the mid brain, in such a manner, that a decrease of these secretions results in functional disturbances of the water center in the thalamus (diabetes insipidus), a lowering of temperature and disturbances of other centers of metabolism. There is an increase of these secretions after excitement.

The vegetative centers may be excited and inhibition can be brought about by centripetal nerve stimulation, especially

through the blood. This can be observed by carbonic acid in the blood, which affords a breathing stimulus, also a stimulation and regulation of the water, salts and sugar content of the blood which are subject to constant rise and fall.

The heat centers in the thalamus-striatum are also regulated by the blood temperature. Blood of subnormal temperature acts as a heart stimulant, and blood of high temperature as a parasympathetic cooling stimulus. Over stimulated or under stimulated centers are sensitive to opposite stimuli, and produce an opposite regulation. A heat center, over-stimulated by fever, can be braced by antipyretics; a heat center not over stimulated cannot be so braced. The heat center is altered in its susceptibility by a changed content of the sugar or salt in the blood. Antipyretics inhibit the salt center, and insulin may lower a high temperature. Narcotics are toxic to the cerebrum, since they dull the pain centers; cortical sensibility disappears in chloroform and ether narcoses, even before the loss of consciousness; opiates paralyze the pain centers of the cerebrum, before it induces sleep; other hypnotics which do not grossly influence the sensation, inhibit cerebral activities. Examples are: Alcohol, amylene hydrate and chloralose; chloral hydrate raises the cortical inhibition to the vegetative brain stem centers, and paraldehyde which de-inhibits the water center in the vegetative brain stem, are also examples. The bromides seem to be sedative to the cerebrum. Most cortical hypnotics are unable to inhibit the inter brain and mid brain vegetative centers, and, in small doses, cannot control the motor irritability or coordination disturbances of the brain stem.

The hypnotics in most common use at the present time are, the urea products, of which barbital, phenobarbital or luminal, somniphene, elixir alluriate, allonal, are the best known. They exert their influence on the brain stem in the region of the vegetative centers, rather than on the cerebrum. Of similar action, are chloretone, valerian and magnesium salts. These exert a sedative influence on the thalamic motor brain area, when administered in doses insufficient to induce sleep. They inhibit choreiform movements, the vomiting center and the diuresis center and, to some degree, the heat center. Excessive doses of the urea products produce gross coordination disturbances.

Hypnotics which affect the cerebrum, are alcohol, amyhydrate, chloralose, paraldehyde, chloral hydrate, bromide salts and morphine. Sleep remedies, therefore, may be divided into two classes—depending upon their point of attack and sleep-producing qualities. It has been well proven that their influence is not alone on the cerebral cortex, but also upon the brain stem. After removal of the cerebrum and corpus striatum, there is a spontaneous period of sleep and wakefulness, and the animal responds to the action of various hypnotics. Deep sleep may be induced by smaller doses of hypnotics, than in the normal animal. This is true, whether the hypnotics be of the cerebral or brain stem type. This sleep begins with paralysis of the body posture and of labyrinthine reflexes, and with complete deinhibition of the thalamic pseudo-pain center. The fact that the decerebrate animal responds, by sleep, to cerebral hypnotics, proves that cortical hypnotics also inhibit brain stem centers and tracts. It seems from these experiments, that all sleep remedies affect the brain stem. Experimental injuries to the thalamus, corpora quadrigemina, and aqueduct, produce a somnolence that may last for several days.

Some drugs both excite and inhibit different parts of the brain. Atropine excites both the cortex and brain stem, while scopolomine is sedative, and may induce sleep. In severe coordination disturbances, such as Parkinson's disease, and in motor excitability of acute mania, it is sedative, by inhibition of the motor coordination center of the brain stem, and also deinhibits the thalamus, the sleep mediation center for the brain stem.

Sleep induced by magnesium salts may be quickly interrupted, by intravenous injection of calcium chloride. Magnesium salts induce sleep by action upon the thalamus, while the calcium salts stimulate the corpus striatum and the cerebrum, and produces a prompt awakening. This indicates that the cerebrum, thalamus and corpus striatum, for sleep and awakening effect, have a mutually influenced boundary line—any alteration in the state of one, influences the sleep and wakefulness of the others.

There is a latent susceptibility to sleep in the thalamus, which is disturbed, mainly, by stimuli from the cortex or striatum, and any obstruction to the stimulating tracts, is a preliminary condition to sleep,

in a predisposed thalamus, and the nearer to the thalamic sleep centers, the stimulating tracts are blocked, the more prompt and more profound is the sleep. This offers an explanation as to why thalamus animals will be put to sleep by drugs which have no hypnotic effect on the normal animal. If the stimulatory effects of the fore brain over the thalamus, be removed, such drugs as ergotoxin, apomorphine and calcium salts, which are not hypnotic, are capable of inducing sleep. Such substances as increase the centrifugal stimuli of the cerebrum and striatum or centripetal stimuli, from the periphery region of the thalamus, induces insomnia. Caffeine, cocaine and camphor stimulate the cerebrum, and tend to produce wakefulness, as also do subcortical stimulatory poisons, as B—tetrahydronaphthylamin, epinephrine and ephedrine. It is worthy of note that cortical stimulants, such as caffeine and cocaine, which normally produce waking stimuli in the brain, and can readily break through sleep produced by chloral—a cerebral hypnotic—are entirely ineffective in the decerebrate animal, while substances which stimulate the brain stem centers, such as tetrahydronaphthylamin, ephedrine, cardiozol and exeton, stimulate to awakening, the decerebrate animal, from a profound chloral sleep.

Many explanations have been offered of the onset of sleep. Economo and others concluded, as the result of experiments on animals, and pathologic anatomic observations, that the onset of spontaneous sleep, also sleep induced by medication, depends on the irritability of the thalamic boundary area in the interbrain and mid brain. An investigation of cramp-producing toxins reveals that, in addition to their influence upon the typical motor and animal reflex centers, they also influence vagus centers; others affect, mainly, sympathetic centers. Picrotoxin is a typical parasympathetic toxin. It stimulates the vagus center in the medulla, the oculomotor center in the corpora quadrigemina, the parasympathetic, salivary and sweat centers, and like santonin, camphor, cardiozol, phenol, aconitine and veratrine, reduces temperature probably by stimulating the parasympathetic cooling center, and, by central inhibition of heat production. Caffeine, cocaine and B—tetrahydronaphthylamin are central sympathetic stimulating poisons, and produce central vasoconstriction, increase heart beat, central sympathetic pupil dilation, raise temperature by

stimulating sympathetic heat centers in the hypothalamus.

Sherrington has described pseudo-pain reflexes coming from a center in the mid brain, through sympathetic tracts, which express themselves as defensive movements—crying reflexes, changes in breathing, tear secretion, distortion of mimicry, pupillary dilatation, and other evidences of displeasure or pain. These pseudo affective reflexes are normally stimulated through cortical pain centers, and are depressed through special inhibitory tracts, from the cortex.

Most drugs that eliminate the sensation of pain from the cortex, also prevent stimulation of the hypothalamic pseudo-pain center, by interruption of the reflex tracts, from the cerebrum to the mid brain. Those drugs which reduce and calm pain, also reduce high temperatures.

Hypnotics and narcotics reduce the irritability of the heat centers in the corpus striatum, and hypothalamus. It has been proven, by experiments, that the heat centers are in the basal and middle posterior two-thirds of the central grey matter of the mid brain, and, are controlled by a superordinated strait center. The point of influence of antipyretics is near the sleep-regulating center. This explains why antipyretics can be substituted for hypnotics, and the combined action of hypnotics and antipyretics, by inhibiting irritation impulses to the thalamus, increase the soundness of sleep. Antipyretics and analgesics act together in reducing pain, as the tracts and central nuclei of heat and pain are close together in the mid brain.

Metabolic cellular processes are regulated centrally. Both the elimination and absorption of such substances as water, salts, sugar, fat and albumin by the tissue cells, have a central control and turgor and tonus are regulated, alteration of fluid absorption and elimination of striated muscle, has been observed, after excluding central sympathetic control. There is also a disturbance of metabolism of ammonia, glycogen, lactic acid and lacto-diogenic substances in the muscle cells.

Rosenow and Hoff proved that the blood picture is influenced by brain stem centers. The vomiting centers in the thalamus may be controlled by sedatives; reflex and directly stimulated vomiting may be checked by such drugs as phenobarbital, barbital, valerian and chloretone, apomorphine—vomiting may even be so controlled.

There are important respiratory and circulatory regulating centers in the mid brain, and it is by action upon these centers, that morphine, chloral hydrate and other hypnotics exert favorable influence upon the course of oedema of the lungs. Oedema of the lungs occurs before apoplectic insults and in pre-eclamptic women, with no disease of the heart, and in post-apoplectic paralyzed limbs. These conditions are probably dependent upon disturbances in these centers.

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TRIGEMINAL NEURALGIA

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Gould's dictionary defines neuralgia as "a severe paroxysmal pain in the area of distribution of a nerve or along its course."

Trigeminal neuralgia major or, as it is called, tic douloureux, is the most frequent and the most severe of all forms of neuralgia. Formerly regarded as the most intractable of all, it is now of all the varieties, most easily, certainly, permanently curable.

This disease is one of which the etiology still remains undetermined, and the pathology yet unknown. Without favor, it strikes rich and poor and, while the age of 35 to 50 seems its time of election, a case has been reported in a child nine years old and I have seen it in one past four score and ten.

This disease, like so many other diseases of unknown origin, and like the shortness of human life, has been attributed to bad teeth. But it occurs in those who have clinically perfect dentures as well as in those entirely edentulous, and the removal of teeth—any or all of them—is utterly futile as a therapeutic measure. Yet, notwithstanding this fact, tooth extraction is the therapeutic measure most commonly employed.

The fact that the disease most rarely occurs in the first division is the chief reason for blaming the teeth, another is that the initial pain is often—or seems to be—in one of the teeth. The middle division is the one most frequently involved.

In one hundred cases operated upon, 64 were females, and this is about the proportion found in other clinics.

The patient is most often one who otherwise has always enjoyed good health, and the first attack comes as a decidedly painful surprise. The story of its first onset is somewhat as follows: "while at work, I suddenly felt a very sharp, stinging (some say cutting, tearing, burning, shooting) pain in my face (less often—tongue, tooth, gum, lip, or cheek). It lasted for about half a minute and was gone."

Almost invariably the patient can indicate *with one finger* the spot where the pain begins, and it often happens that a light touch to, or movement of, this spot (trigger point of Patrick) causes a spasm of pain. I have never yet been able to excite a paroxysm by pressure outside the area of the division involved.

While the patient is recovering from his surprise and wondering what could have caused him such a severe paroxysm of pain, he is often struck by a second spasm, but the second may not come for some hours. The interval between paroxysms varies from two to ten minutes. During this time, there is entire freedom from pain, but the patient lives in anxious dread of the next spasm.

During the spasm the patients vary much in their behavior. One grasps the face in his hands, one rapidly and forcibly rubs the part involved—I have several times seen the skin "rubbed off" leaving a raw, glistening, weeping surface—another distorts his features or writhes in agony, and I have seen a man throw himself on the floor and cry aloud, yet another quivers, clamps the jaws together and sits immobile and expressionless as stone until the terrible ordeal is over.

During the spasm it is quite common to see the veins on that side of the face become distended, the conjunctiva congested, the tears flow and the saliva drool. In others, spasm of the muscles of that side is marked (7th and 5th cranial nerves).

Between spasms there is no pain whatever. If there is, it is likely not true tic douloureux. Sometimes the skin of the face and the hair in the trigeminal area of that side become sensitive to light touch, but usually there is no soreness. It is true that the patient neither washes, combs, nor shaves on that side (neither does he eat, drink or speak more than he can avoid) but this is because touch or movement, as I said before, is likely to provoke a paroxysm. The spasms recur at varying intervals throughout the day, and in the first

attacks usually cease when the patient goes to bed. Later on, however, sleep is interfered with and opiates are resorted to.

An attack lasts at first usually only a few days and the patient may not have another for a year or longer. As time passes, the free interval shortens and the attack lasts longer. They sometimes tell me they have had no rest for three or even six months.

Now, patients who have constant pain have not tic douloureux, nor do patients with tic douloureux have pain outside the trigeminal area. A knowledge of these facts helps greatly in establishing a diagnosis and effecting a cure.

There is no other disease that I know of so amenable to treatment. There is no treatment that is worth considering other than (1) deep injection of alcohol for temporary relief and (2) root section for permanent cure.

Alcohol injection was devised by Schlosser in the early years of this century. It consists in injecting into the sheath of the division involved, just where the latter leaves the skull, one or two c.c. of 70 to 80% alcohol. If the needle strikes fair, degeneration of the nerve fibers with consequent analgesia of the area follows: This can be done without anaesthetic (it is very painful, but quickly over and is more certain than when done with anaesthetic). The relief is immediate, and on the average, lasts over a year and may be repeated when needed again. However, with each succeeding injection, the period of relief is likely to shorten, and after a third or a fourth, relief becomes impossible. It is obvious that alcohol injection is not a method that can be used safely to relieve pain in the first division because of the danger to the optic nerve.

As a permanent cure, root section is the operation of choice. It consists in cutting the fibers of the sensory root just proximal to the Gasserian ganglion. The story of the development of the operation is interesting, but it must suffice here to pay tribute only to Spiller of Philadelphia, at whose suggestion Frazier of that city first performed it. It has now stood the test of nearly thirty years, and in America has entirely displaced removal of the Gasserian ganglion as Spiller intended it to do. In practically every country in Europe, ganglion removal is still the operation of choice.

To perform root section, it is necessary to open the skull as it is in ganglion removal, but the dangers of the latter are, as shown by published statistics, more than ten times greater.

It is my very firm conviction, speaking with regard to operations in general—I am a general surgeon—other things being equal local anaesthesia with one-half per cent novocaine is less dangerous than any general anaesthetic known. And for any operation on the scalp, skull, or brain local anaesthesia has many other decided advantages. I have performed the operation of root section under general as well as under local anaesthetic and I know whereof I speak.

When first the operation was devised by Frazier, surgeons were content to avulse the whole root—both motor and sensory parts—from the pons. At present again following the lead of Frazier, it is the custom to save the motor root.

As said before, the disease rarely attacks the first division. This led Jonathan Hutchinson, Jr. of London to conserve the upper part of the ganglion. He was at that time a believer in ganglionectomy. For the past six or seven years—again following the lead of Frazier—most surgeons aim to save such fibers of the sensory root as arise in the upper part of the ganglion. When this is done it is of inestimable advantage, since by it the post-operative conjunctivitis, corneal ulcer or even total loss of the eye are prevented.

This I do, except when the first division is involved in the neuralgia. In the first in whom I tried it, I left too many of the fibers, and in six weeks the patient was back with pain in the middle division. This is the only patient in all I have done who had to be operated a second time. Local anaesthetic is of the greatest value when it comes to deciding which fibers to leave and which to cut.

The most erroneous impressions exist in the minds of the profession regarding this operation. Patients are often deterred by their physicians from having this operation performed. One must, therefore, consider the various unpleasant consequences that may ensue.

Numbness of that side of the face and mouth is inevitable. It is very unpleasant at first, but soon is not noticed at all.

Facial paralysis (7th nerve), the origin of which is not yet known, occurs in a cer-

tain percentage of the cases. It may last a year or more, but it is said not to be permanent.

Eye trouble will ensue in those cases in which the whole root is sectioned unless the patient is intelligent enough to obey instructions. When cornea and conjunctiva are anaesthetized dirt is likely to get in. The patient is instructed to bathe the eye in warm saline before going to bed, and to wear a goggle when in wind or dust. Those who obey have no serious trouble.

Post-operative pain. Practically all of the patients have peculiar para-esthesiae around and in the area denervated. These are unpleasant, but they soon pass and they are never so terrible as the original pain.

Some extravagant statements are made to patients regarding the mortality of the operation. The operation as practiced in the largest clinics in the United States for the past ten years carries, I believe, a mortality of about one percent. I have, all told, performed the operation of root section under local anaesthesia more than one hundred times (101) without a death.

What other major operation has such a low mortality?

University Club Building.

FOREIGN BODIES IN THE EYEBALL*

W. ALBERT COOK, M.D., F.A.C.S.
TULSA

Foreign bodies in the globe of the eye may be specified as magnetic and non-magnetic, and as this brief paper deals only with foreign bodies which have entered the interior of the eyeball, we will pass over the many foreign substances which become embedded in the cornea and sclera.

The first procedure, when we are confronted with a case which gives a history of being hit in the eye by a foreign substance or where we can locate a penetrating wound of the eyeball, is to determine whether the object struck the eyeball and did not enter the cavity of same, or whether it penetrated the different structures of the eyeball. The majority of cases are caused by a piece of metal from a hammer or chisel breaking off and striking the eyeball with such force that it is impossible

*Read before the Eye, Ear, Nose and Throat Section, Annual Meeting Oklahoma State Medical Association, Shawnee, May 26, 27, 28, 1930.

for the patient to tell whether it penetrated or not. If we see the case a short time after the injury we are often able to locate the foreign body in the globe of the eye with an ophthalmoscope, but in many cases there is an interocular hemorrhage which makes it impossible to get a view of the fundus or interior of the eye. The X-ray with a localization chart can usually make our diagnosis and give us the location, which enables us to select the site for our operation for removing the substance.

After the foreign body has been localized, the next question is to determine whether it is magnetic or not, and we are often greatly assisted if we can see the tools the patient was working with at the time the accident occurred, as we are very often able to locate a small fragment from the hammer or chisel or the substance he was working on. It is often possible to insert the point of a magnet in the wound caused by the entrance of the foreign body and extract it through the same opening it entered the eye. Often times these particles will pass through the chrySTALLINE lens and lodge in the vitreous or choroid without causing an opacity of the lens, and several cases have been reported where the tip of the magnet was introduced into the corneal wound, and the foreign substance extracted through the same tract where it penetrated the lens. In some cases where the foreign material is behind the lens it has been successfully removed by dilating the pupil and applying the giant magnet over the cornea near the limbus, and manipulating it so that the foreign body has been pulled around the lens when it is extracted through the opening it entered, or by an opening made into the cornea preferably at the bottom near the limbus.

It seems strange, but it is nevertheless true that particles entering the interior portion of the eye will sometimes pass through the lens and cause a slight opacity and the rest of the lens remain clear. We recall an interesting case along this line where the fragment of steel penetrated the cornea, iris and upper margin of the lens and same was removed, through a scleral opening superiorly, which healed perfectly and the lens had a V shaped opacity with the point radiating toward the center, but the remainder of the lens remained clear, and the patient had 20-40 vision with a cylinder correction.

Many of these foreign bodies are so small that it is very difficult to extract

them unless, with the aid of your localization chart you can place the tip of the magnet almost if not in contact with it, as these pin point particles do not have enough substance to be dislodged from their location and many of them are embedded in the walls of the choroid. Many of these small particles become incised and lie quiescent indefinitely while others are dissolved and we get siderosis with a discoloration of the iris, in which case there is nothing we can do, and the eye will have to be enucleated sooner or later.

During the winter months we often see where fine chilled bird shot has penetrated all structures of the eyeball, and usually with such force that they become embedded in the posterior wall and I recall a case which came in about ten years ago in which the shot had passed through the cornea, lens and posterior wall and was embedded in the orbital fat on the nasal side of the optic nerve. After the inflammation had subsided in this case we had a traumatic cataract, but the last time the case was in two years ago it was still passive and has never shown any signs of sympathetic ophthalmia, and is no doubt incised.

Another interesting case came in last December, in which the shot had passed through the upper margin of the cornea and 48 hours after the accident the hole could be seen with the ophthalmoscope in the choroid internally and below the disc where the shot had passed out of the eyeball and become lodged in the orbit. There was considerable lagophthalmus which at first looked as if we might be getting a panophthalmitis, but the inflammation gradually subsided, but after the first four days it was impossible to get a view of the fundus as there had evidently been a late hemorrhage, and there was no fundus reflex for four or five months. At the last examination it seemed to be clearing up and if its absorption continues there is a possibility that the patient may regain some vision, as the shot is no doubt incised and may remain dormant indefinitely.

Another very interesting case had a piece of steel in the chrySTALLINE lens which we were unable to extract with a magnet so we extracted the lens which had become opaque and found the article of steel almost in the center of the lens.

Fortunately this man regained useful sight in said eye with the aid of glasses, for there was no vision in the other eye.

It is remarkable the size of some of the particles that accidentally enter the eye. It was our good fortune to remove one which, nearly rectangular, 8mm wide, 12-mm long and 4mm thick, in which case the eyeball was preserved, but no vision. This was removed through the wound it had entered at the limbus, and strange to say there was no infection following its removal.

1107 Medical Arts Building.

DETACHMENT OF THE RETINA*

L. C. KUYRKENDALL, M.D.
MCALESTER

I do not have occasion to see many cases of detachment of the retina and when I do see a case it becomes very interesting to me and provokes quite a study in order to determine the causative factor more especially if there is no history which will help to clear up the diagnosis. The degree of separation as well as extent and time which as elapsed since the detachment influences the picture and often times adds greatly to the puzzle. There are so very many pictures which flash before you with the ophthalmoscope that often times it is quite some time before you are able to state definitely the condition you are dealing with.

I have found the diagnosis of retinal detachment everything but easy and the determination of the cause thereof much more difficult. I am, therefore, prompted to give you some thoughts of this condition because of a case on hand at the present time which to me is very interesting and which has caused me no little worry and concern.

As the name implies, detachment of the retina is a condition wherein there is a separation of the retina from the underlying choroid and is one of the most serious conditions with which the oculist is confronted, especially as regards the function of that particular eye.

This condition is found more often in men than women and while not often found in children it is not so uncommon. Some authors state that it is very rarely found in children, but most often in men between the ages of 45 and 60.

There are two types with which we have

to deal, the traumatic and idiopathic. Under traumatic, conditions producing a detachment of the retina are; first, wounds of the globe, especially penetrating wounds and severe contusions or blows directly on the globe or of sufficient violence to the head. Second, we have the different intra-ocular operation such as iridectomy, cataract extractions, and operations for glaucoma as well as the release of synechia, especially if loss of vitreous occurs, then, too, we have detachment of the retina being caused by the choroid undergoing extensive shrinking following certain inflammatory conditions. It may also follow irido-cyclitis, although it rarely ever follows any of the different forms of retinitis, the exception being albuminuric retinitis of pregnancy. It will be found, or rather it is found, in the majority of these cases we have a myopic eye with which to deal. This is explained by the stretching of the sclera and choroid incident to the myopic condition.

Under idiopathic causes we find coughing the most frequent cause and usually follows a violent attack of coughing such as is produced by whooping cough in children or a sudden strangulation in an adult. Other factors producing the condition are intra-ocular tumors, childbirth, excessive anger, great fear, undue exertion, especially in lifting, vomiting, stooping, sneezing, and hiccoughs.

ETIOLOGY

As the retina lies upon but is not connected with the choroid except at the papilla and the ora serrata, it is possible then for detachment to take place either when there is sufficient pressure behind it or when the pressure of the vitreous is not sufficient to keep it in its normal position. In other words any condition which reduces the normal vitreous pressure against the retina may produce detachment. Likewise any condition existing beneath the retina which is sufficient to overcome the vitreous pressure whether the vitreous pressure be normal or reduced may produce detachment. Any condition producing a change in the vitreous may so far reduce the pressure as to make it a negative pressure. When this occurs it then acts as a traction.

Detachment caused by or following vitreous changes produces such a cloudy media that it cannot be seen with the ophthalmoscope, consequently when that has occurred we must then rely upon the sub-

*Read before the Eye, Ear, Nose and Throat Section of the Oklahoma State Medical Association at Shawnee, Oklahoma, May 26, 27, 28, 1930

jective symptoms and the very great retraction of visual field along with the greatly reduced tension of the globe.

Serous detachment, a detachment characterized by the transudation of fluid from the choroidal vessels may follow changes in the vitreous from inflammations or may occur in a high degree myope where there has never been any inflammation and is by far the greatest danger the highly myopic eye may encounter. This phenomenon has never been satisfactorily explained.

Serous detachment may be due to injury or disease. The detachment occurring in the aged without apparently any diseased condition having existed at any time, in all probability is brought about by senile changes in the vitreous itself.

There are several other forms of detachment which are deserving of mention and study. There is that form produced by hemorrhage whether caused by violence or injuries. Spontaneous hemorrhage occurs and often it is impossible to find the cause unless it be in a person with high blood pressure. Tumors of the choroid produce a detachment which is characterized by distinct differences from those of the serous or hemorrhagic type, as I have shown under diagnosis.

Cysticercus subretinalis might easily be mistaken for retinal detachment but there are definite characteristics which differentiate them.

PATHOLOGY

Leber, Nordensen, Raelhmann, and Vail have all advanced theories as regards detachment of the retina.

Leber's theory is that in all non-traumatic cases the detachment is due to a shrinking of the vitreous humor which produces a rent or tear in the retina which allows the fluid then to pass through and by gravity increase the separation.

Nordensen agrees with Leber but contends that the primary condition was in the choroid and ciliary body which then produced fibrillary degeneration which in turn produced contraction of the vitreous that had become attached to the retina, usually in the upper part although it may occur at any point.

Raelhmann's theory is that there is an exudation from the choroidal vessels and that diffusion of vitreous ingredients, which are less albuminous than the exudation from the choroidal vessels occurs

through the retina, thus lifting or pushing the retina away from the choroid.

Vail's theory is that there is a paralysis of the secretory function of the ciliary processes. This means that the secretion of aqueous is suddenly arrested. There being nothing wrong with the drainage channels within the eye the watery elements find ready egress thus causing a minus tension. Leber found 90 per cent. had minus tension. The withdrawal of normal tension causes passive hyperaemia of the blood-vessels of the tunica vasculosa. This allows diapedesis and transudation. The vitreous contracts because it loses its percolating supply of aqueous which soon drains off through the efferent channels which are wide open, and the fibers of the vitreous naturally contract as a sponge would contract after losing its water.

At the beginning of the condition the detachment is only partial. It is usually confined to the upper portion, although it may occur at any point except the ora serrata and the optic disc, and by gravitation involve all or nearly all of the retina. Usually when we see these cases the detachment is already low down in the retina. When the detachment has become complete, and the tendency is for them to do that despite all modes of treatment we find the field of vision very greatly reduced and the optic disc and ora serrata the only points where the retina is attached.

Usually only one eye is affected although it may be bilateral.

Cataract is common in the later stages of detachment, as well as vitreous opacities.

SYMPTOMS

In considering detachment of the retina we must consider the symptoms under two divisions, the subjective and objective.

Under subjective symptoms one of the first things complained of is dimness of vision. This may be manifest only by an inability to see distinctly or it may assume greater proportions. They will complain of metamorphopsia (objects appearing crooked) and photopsia (flashes of light, sparks, dust, soot, or dark clouds). There is no pain in these cases unless it is complicated with some other condition. Often these patients complain of being able to see only one-half of an object, usually the lower half, as in looking at a man they can see his body but not his head. Vertigo is more or less a common symptom, and is

produced by the detached retina continuing to function to a degree. Central vision is good unless the macular region is involved.

If the detachment becomes complete the detached retina may overlay the macula and optic disc and vision in that eye be nil.

The objective signs are, a deepened anterior chamber with the tension usually minus, with the normal fundus-reflex lost wholly or in part.

The anterior chamber is deepened because of the lens having sunk backward.

In Fuch's textbook of ophthalmology we find this statement credited to Von Graefe: "In that form of detachment of retina which is produced by active propulsion of the retina away from the choroid the tension is not diminished, but rather is increased. Hence, increase of tension with detachment of the retina is in doubtful cases an argument that an intra-ocular tumor is the cause of the detachment."

The retina appears as a gray, (velvety gray or balloon cloth color) vibrating, rounded membrane up on whose folds we see the retinal vessels small, tortuous, and dark in color due to their having lost their central light streak, coursing over the membrane.

The vessels may even disappear in places as they dip into the folds of the membrane, then upon leaving this detached membrane to normal retina resume their normal color and characteristics.

In detachment due to tumors or recent hemorrhage the mass of folded retina does not vibrate with movements of the eye, but on the other hand remains stationary.

By means of transillumination the mass darkens the opposite wall of the globe while in the serous type transillumination is more nearly that of a normal eye.

Very often a rent or tear is seen in the detached retina either in the upper part or in the periphery of the fundus.

In the detachment due to cysticercus subretinalis detachment is seen as a round, sharply circumscribed area, the margin of which is light in color with the bluish-gray cysticercus bladder beneath the raised mass. This mass does not vibrate in contradistinction of that of the serous detachment.

Edema of the retina shows the fundus uniform and not folded as in detachment.

The variation in level of the affected portion can be recognized with the ophthalmoscope at a distance by the difference in the refraction of a blood vessel on the separated part and by following it into the normal retina. The amount or degree of elevation as you know can be measured with the ophthalmoscope.

The prognosis is unfavorable as the detachment tends to enlarge. In rare instances permanent reattachment occurs, but relapses are the rule and complete blindness follows.

I have purposely refrained from giving any treatment for the reason that to attempt it here would be unwise as well as unsatisfactory.

ETHYLENE

Following the explosion in Evansville, supposedly due to ethylene, Moses Salzer, Cincinnati (Journal A. M. A., June 22, 1929), undertook an investigation. He found that the quantity of ethylene capable of explosion at any one time is too small to produce any considerable damage. A nation wide survey of more than 425,000 ethylene anesthetics shows a remarkably favorable record. He concludes that ethylene is probably as safe, as ether, if not safer.

STABILITY OF DIGITALIS AND ITS PREPARATIONS

Six specimens of powdered digitalis have been examined by Harvey B. Haag and Robert A. Hatcher, New York (Journal A. M. A., July 6, 1929), in the laboratory after intervals varying from one to sixteen years, and in no case has deterioration been detected, and no one in the laboratory has ever observed anything indicative of deterioration in one of the many specimens of powdered digitalis used. Powdered digitalis, in tablets or in capsules, is admirably suited for securing uniformity of dosage where individual patients, clinics or groups of clinics are provided with sufficient to last one year or more. A sterile infusion of digitalis undergoes little change within several months, and deterioration then results solely in diminished activity, not in increased toxicity. The official tincture of digitalis retains its activity with comparatively little change during several years, and any change that does occur merely calls for a corresponding increase in dosage. The secret of deterioration of liquid preparations of digitalis has not been explained fully, and there is no evidence that any of these preparations are as stable as powdered digitalis kept with ordinary care in a corked glass bottle. Aqueous solutions of strophanthin, ouabain or other digitalis principles, kept in ampules of soft glass, deteriorate rapidly. Ouabain solution in ampules of hard glass decomposes slowly. Their investigation lends no support to the contention that any of the digitalis specialties are more stable than the official digitalis tincture. All liquid preparations of digitalis should bear the date of manufacture.

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Failure to receive The Journal should call for immediate notification of the editor, Barnes Building, Muskogee, Oklahoma.

Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

TAXING THE PHYSICIAN BY LICENSE

The following communication, from the Attorney General's office, will be of interest to physicians, especially to those in small towns, who sometimes find themselves subject to petty taxes, under the guise of licensing. It would seem there is some question as to whether a small town may impose a requirement "license" upon a physician after he has already been duly licensed by the State. However, it is very likely that the Supreme Court will have to settle this.

The opinion of the Attorney General, that a license once revoked, may not be restored except through the manner in which it was originally secured, seems sound.

Dr. C. A. Thompson, *Secretary*,
The Oklahoma State Medical Association,
Muskogee, Oklahoma.

Dear Sir:

Your letter addressed to the Attorney General under date of October 20, 1930, has been referred to the writer for reply. With your letter you enclosed a letter which you received from Dr. C. H. Atkins of Boise City, Oklahoma, which letter reads as follows:

"I address you regarding a condition that has come up out here.

"The City Council has passed an occupation tax and have exempted the lawyers, barbers, insurance and hair dressers and possibly others.

"Now what we want to know is, can they make the doctors and dentists pay this occupation tax? I maintain that it is class legislation and that it is doubtful if any occupation tax will stand up.

"If there has ever been any decision handed down on this law in the State or elsewhere please advise, and if not, give me the best advice you can on the matter."

You request information concerning the question presented in Dr. Atkins' letter.

In reply you are advised that Section 4556 of the Compiled Oklahoma Statutes of 1921 authorizes the city council in cities to levy and collect a license tax on certain occupations. This section does not enumerate doctors and dentists as being occupations which may be taxed. The Supreme Court of this State has held this section of the Code to authorize city authorities to impose a license tax for revenue as distinguished from a license fee collected on account of necessary police regulation. *Ex parte Marler*, 282 Pac. 353.

It is the understanding of the writer that Boise City is a town and not a city. Therefore, the above statute would not apply to Boise City. The statute which is applicable to towns is Section 4763 of the Compiled Oklahoma Statutes of 1921. Said statute reads as follows:

"The board of trustees shall have authority to levy and collect a license tax on auctioneers, contractors, druggists, hawkers, peddlers, brokers, bankers, pawnbrokers, merchants of all kinds, grocers, confectioners, restaurants, butchers, taverns, public boarding houses, billiard

and pool tables, bowling alleys, drays, hacks, carriages, omnibuses, carts, wagons and all other vehicles used in the town or village for pay; hay scales, lumber dealers, furniture dealers, saddle and harness dealers, jewelers, livery stable keepers, real estate agents, express companies or agencies, life or fire insurance companies or agencies, shows, theatres, all exhibitions for pay, doctors, dentists, blacksmiths, all manufacturing establishments, cotton gins, mills and elevators, plumbers and tinnerns, Provided, however, that all scientific and literary lecturers' entertainments shall be exempt from taxation, and also all concerts and musical or other entertainments given exclusively by citizens of the town. The tax so levied and collected therefrom shall be applied for the use and benefit of such town as may be directed by the board of trustees thereof."

You will note that this statute authorizes the Board of Trustees of a town to levy and collect a license tax on a great number of occupations, including doctors and dentists. This statute is similar to Section 4556, *supra*, and, therefore, authorizes the imposition of a license tax for revenue as distinguished from a license fee collected on account of necessary police regulation.

Dr. Atkins suggests that the occupation tax levied against doctors and dentists is illegal because the tax is not levied against lawyers, barbers, and others, and that, therefore, it is class legislation. The tax would not be illegal for that reason because the Constitution only requires that taxes shall be uniform upon the same class of subjects. See Section 5 of Article X of the State Constitution. Further, in this connection, your attention is directed to Section 1101 of McQuillin on Municipal Corporations, which reads in part as follows:

"Constitutional provisions requiring that taxation shall be equal and uniform throughout the state have no application to the taxation of trades, professions and occupations, but apply only to direct taxation on property as such. However, the rule is that all persons engaged in the the same occupation, profession, or class of business, must be taxed equally and uniformly. Hence, an ordinance which discriminates against non-residents and in favor of residents by imposing a license tax in a different manner or at a different rate from that imposed on residents is unconstitutional. So all ordinances which discriminate in the license tax imposed by them against persons or products of other states are uniformly held void as in violation of the Federal Constitution. And the rule is also uniformly enforced that any discrimination as to persons of a class, in the ordinance impos-

ing the license will invalidate the legislation and render the collection of the license fee void."

The difficult question that is presented is whether after the State has licensed a doctor or dentist to practice within the State, a municipal corporation may prevent the doctor or dentist from practicing without first paying a license tax to the municipality.

In this connection the case of the Mayor and Aldermen of Savannah, vs. Thomas J. Charlton, 36 Ga. 460, may be of interest to you. In this case the Supreme Court of Georgia held as follows.

"When a physician is licensed by the authority of the State to practice medicine, the city of Savannah cannot require him, under a penalty, to take out license before he can practice his profession in the city.

"The practice of his profession in the city is the subject of taxation by the corporation, but not of a license."

The first legislature after statehood provided for the licensing of physicians and provided that the certificate issued by the State to a physician authorized him to practice medicine and surgery in this State. See Section 6898, Revised Laws of Oklahoma 1910, enacted by the 1907-08 Legislature. This same legislature enacted Section 4763, quoted above, and authorized the Board of Trustees of a town to levy and collect an occupation tax on doctors and dentists. Likewise, in 1905, the legislature provided for the licensing of persons to practice dentistry within the State of Oklahoma. See Section 6820, Revised Laws of Oklahoma, 1910.

The present laws regulating the practice of medicine and dentistry in this State were enacted subsequent to the enactment of Section 4763, *supra*, but these statutes (Sections 8701-8729, C. O. S. 1921; Ch. 59, S. L. 1923) do not prohibit a town from exercising the authority granted to it by Section 4763, that is, to levy and collect an occupation tax for revenue purposes only from doctors and dentists.

It, therefore, is the opinion of the Attorney General that the legislature has provided for the regulation of the practice of medicine and dentistry in this State by the State, and at the same time has provided that towns may levy and collect a license tax or occupation tax for revenue against doctors and dentists. Cities have not been authorized to levy and collect such a tax from doctors and dentists.

The following excerpt from McQuillin on Municipal Corporations (Section 1102) may be of interest in regard to the reasonableness of the amount of the license tax.

"Where the exaction is imposed under the power to regulate or in the exercise of the police power, as distinguished from the power to tax for revenue, as heretofore explained, the general rule obtains that the sum levied cannot be excessive nor more than reasonably necessary to cover the costs of granting the license and of exercising proper police regulation. **** Where under undoubted charter power, the tax is imposed for revenue alone, or for police regulation and revenue, the amount thereof is usually a matter for determination by the legislative branch of the municipal government. Ordinarily the courts will decline to interfere on the ground that the amount is oppressive or unreasonably large. They incline to defer to the judgment and discretion of the corporate authorities, and frequently presume that the amount demanded is reasonable, particularly in the absence of evidence to the contrary.****"

Very respectfully,

For The Attorney General

Randell S. Cobb,

Assistant Attorney General

Approved in Conference 10-25-30.

—0—

REVOKED LICENSES CANNOT BE RESTORED

Oklahoma City, Okla.

October 14, 1930.

Dr. J. M. Byrum, *Secretary*,
Board of Medical Examiners,
Shawnee, Okla.

Dear Sir:

The Attorney General acknowledges receipt of your letter of October 10, 1930, in which you make the following inquiry: "Has the Board of Medical Examiners of Oklahoma the power to restore a medical license, once revoked in this State?"

Section 8806 Compiled Oklahoma Statutes 1921 is as follows:

"When any applicant has shown himself to be possessed of the qualifications herein required and has successfully passed the examination, a certificate must be issued to him by said board authorizing him to practice medicine and surgery in this State. Said certificate shall be signed by each member of the board and sealed with seal of said board: Provided, however, that all physicians and surgeons who were legally licensed

and practicing in Oklahoma Territory and the Indian Territory on the 16th day of November, 1907, shall be required to register with the said board, but shall be exempt from examination except as to their credentials, and shall be entitled to reregistration with the said board, and certificate of registration free of cost."

Section 8812 Compiled Oklahoma Statutes 1921 provides for revocation of certificates and is as follows:

"Whenever any holder of a certificate, issued as herein provided, shall be guilty of unprofessional conduct as defined by this act (article), and such unprofessional conduct is brought to the attention of the board against said certificate, in the manner herein pointed out, it shall be their duty to, and they must at once revoke the same, and the holder of such certificate shall not thereafter be permitted to practice medicine and surgery or in any other departments of medicine and surgery in this State. But no such revocation shall be made unless such holder is cited to appear and the same proceedings are had, as is hereinbefore provided in this section, in case of refusal to issue certificates. The accused party, at the time he presents his answer for filing, shall deposit with the secretary must not file his answer, and default may be thereon entered against him, and his certificate revoked if the charges on their face be deemed sufficient by the board. When the certificate is revoked, the secretary of the board, if the certificate has been deposited with him, shall write across the face thereof in red ink the fact of such revocation, and shall file such certificate so revoked among the archives of his office under the seal of the board to the county clerk of the county of which the certificate of the person whose certificate has been revoked is recorded, and said county clerk must thereupon write on the margin or across the face of his register the fact and day of such revocation in accordance with this article. From the time of the revocation of certificates the holder shall be disqualified from practicing medicine in this State."

Section 8813 defines unprofessional conduct and is as follows:

"The words 'unprofessional conduct,' as used in this article, are hereby declared to mean:

"First. The procuring, or aiding or abetting in procuring, a criminal operation.

"Second. The obtaining of any fee on the assurance than an incurable disease can be permanently cured.

"Third. The wilful betrayal of a professional secret to the detriment of a patient.

"Fourth. All advertising of medical business in which grossly improbable statements are made that are calculated to mislead the public.

"Fifth. All advertising of any medicine or means whereby the monthly periods of women can be regulated or menses re-established if suppressed.

"Sixth. Conviction of any offense involving moral turpitude.

"Seventh. Habitual intemperance, and the habitual use of habit-forming drugs.

"Eighth. The employment of what is commonly known as 'cappers' or 'steerers' in procuring practice. These specifications are not intended to exclude other acts for which license may be revoked on the ground of unprofessional conduct."

The Board of Medical Examiners are not empowered by our statutes to restore a medical license, once revoked.

It is therefore the opinion of the Attorney General that the Board of Medical Examiners are without power or authority to restore a medical license, once revoked, unless the applicant proceed in the same manner as required in first obtaining license.

Respectfully,

For The Attorney General

Edward Crossland,

Assistant Attorney General

Approved in Conference 10-15-30. .

TULSA ACADEMY OF MEDICINE, THIRD ANNUAL CLINIC DAY

The Third Annual Clinic Day of the Tulsa Academy of Medicine is to be held at Morningside Hospital, Tuesday, Nov. 18th. The meeting is an all day and evening meeting with Dr. Meyer Wiener, Associate Professor of Ophthalmology, Washington University, St. Louis, Mo., as the principal speaker. He will conduct a clinic in the afternoon on Plastic Surgery of the eyelids, and will speak in the evening on certain eye conditions of importance in the work of the general practitioner.

The day session at Morningside Hospital will begin at 9:00 A. M., with a three hour period of surgical clinics. Lunch will be served at the Hospital with visiting doctors the guests of the Hospital. The afternoon will comprise medical clinics and demonstrations with Dr. Wiener's clinic.

The Mayo Hotel will serve an evening banquet, and Dr. Wiener will speak.

The Annual Clinic Day has been arranged so that except for transportation and hotel accommodations, where required, there will be no expense attached to attendance. There is no registration fee and

no charge for luncheon or the evening banquet.

Officers of the Tulsa Academy of Medicine are: Doctors James Stevenson, President; Charles J. Woods, Vice-President; Ned R. Smith, Secretary and Treasurer.

—Contributed

Editorial Notes—Personal and General

DR. W. P. LONGMIRE, Sapulpa, attended the Kansas City Clinics the first part of October.

DR. S. H. WILLIAMSON, Duncan, who has been ill for the past month is reported improving.

DR. H. T. BALLANTINE, Muskogee, is reported improving after an illness of the past two weeks.

DR. HALSELL E. FITE, Muskogee, attended the Philadelphia meeting of the American College of Surgeons.

DRS. C. R. SILVERTHORNE and C. E. WILLIAMS, Woodward, attended the Kansas City Clinics in October.

DRS. FRANK H. MCGREGOR, Mangum, and S. E. MITCHELL, Muskogee, attended the American Legion Convention in Boston.

DR. D. LONG, Duncan, attended the annual meeting of the Rock Island Surgeon's Association at Hot Springs, Arkansas, in October.

DR. F. T. GASTINEAU, Vinita, will spend six months at Tulane Medical School, New Orleans, doing Eye, Ear, Nose and Throat work.

OSAGE COUNTY Medical Society met at the Duncan Hotel, October 6th, Pawhuska. Dr. Wade Sisler of Tulsa was the principal speaker.

MUSKOGEE COUNTY Medical Society met, Monday, October 26th. After transaction of business matters Dr. F. G. Dorwart delivered a talk on "Heart Conditions."

GARVIN COUNTY Medical Society met in Pauls Valley, October 22nd, at the office of Dr. W. P. Greening. Dr. Floyd Gray, Oklahoma City spoke on "Obstetrics."

SEMINOLE COUNTY Medical Society met October 16th, in the offices of Dr. J. A. Bates, Seminole. Following a business session of the regular meeting, an interesting round table discussion ensued.

WOODS AND ALFALFA COUNTY Medical Societies held a joint meeting the first of October with Dr. W. E. Simon, Alva, as host. Drs. Carroll M. Pounders, and C. P. Bondurant, both of Oklahoma City, read papers.

POTTAWATOMIE COUNTY Medical Society, after noting one of the picture films, owned by our association and distributed by the Extension Department of the Oklahoma University, passed resolutions of hearty endorsement and commendation of this work.

DR. J. H. ROBINSON of the Oklahoma City Clinic has just returned from a month's visit in the East visiting Clinics and Maternity Hospitals, among the places being Millars Filmore Hospital, Dr. Potter in Buffalo, Cleveland Maternity Hospital, Chicago Lying-In.

OKMULGEE-OKFUSKEE COUNTY Medical Societies met October 20th, Masonic Hall, Okemah. The following was the program: Sodium Amytal Anesthesia, by Dr. F. LeRoy Carson, Shawnee. The use of Iodized Oil in Chronic Pelvic Disorders, by Dr. Edward Witcher, Tulsa.

CADDO COUNTY Medical Society held their monthly meeting at Anadarko, Wednesday, October 22nd, according to the report of Dr. P. H. Anderson, Secretary-Treasurer. Doctors Hugh Jeter and W. K. West, both of Oklahoma City, spoke on "Nephritis" and "Deformities of the Arm" respectively.

LINCOLN COUNTY Medical Society met at Chandler, October 1st. Dr. Horace Reed, Oklahoma City, spoke on Goiter, Dr. M. B. Glismann, Okmulgee, read a paper on Obstetrics. The paper and lecture were discussed by Drs. Hatchett, Wells, and Eskridge, of Oklahoma City; Drs. Marshall of Chandler, and Anderson of Shawnee. Dr. Marshall acted as chairman.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

The Operative Treatment of Paralytic Deformities of the Foot. Leo Mayer. Am. J. Surg. VII, 80, July, 1929.

The author outlines the operative methods which he has employed during the past five years in the correction of the various types of paralytic foot deformities.

Paralytic valgus: (1) mild grade, due to weakness of the tibialis anticus and tibialis posticus, with no marked bony deformity, is treated by manipulation and immobilization in a position of varus; (2) moderate grade, with paralysis of tibialis anticus and weakness of tibialis posticus and other invertors, with definite bony deformity, is treated by the Hoke stabilizing operation. Inversion can be developed by the synergistic action of the extensor proprius hallucis and Achilles tendon; and (3) severe grade, with complete paralysis of tibialis anticus and tibialis posticus, extensor proprius weak, evertors strong, and marked downward displacement of head of astragalus, is treated by transplanting the peroneus longus or peroneus tertius and extensor longus digitorum to the evertors. The Hoke operation is performed for correction of the bony deformity.

Paralytic varus: (1) mild grade, with weakness of evertors without bony deformity, is treated by

transplanting the tibialis anticus or the extensor proprius hallucis to the outer border of the foot by the intrasheath method; (2) moderate and marked grades, with paralysis of evertors and bony deformity of greater or lesser degree, require bone operation. If there is either a tibialis anticus or extensor hallucis suitable for transplantation, the Hoke operation is used, care being taken to resect enough bone from outer portion of astragalocalcaneus joint to permit complete correction of inversion of os calcis. If astragalus is inverted, a wedge resection from the body is done. Then one of the tendons mentioned is transplanted, preferably by the intrasheath route.

If the tibialis anticus and extensor proprius are absent, equinus is usually present. The Achilles tendon is then lengthened and the Hoke operation with the Campbell bone block is done, to prevent the equinus returning.

In the case of equinus deformity with (1) peroneals present, the longus is transplanted to the inner side of the foot by intrasheath route and the brevis to the outside by the subcutaneous route; the Hoke operation is done, also, to prevent a possible varus deformity; (2) peroneals absent, the Campbell boneblock operations is done.

Calcaneus is corrected not by the Whitman operation, but by the Hoke operation modified by the Putti bone block combined with transplantation of the peroneals, the tibialis posticus, and flexor longus hallucis. At least two tendons should be transplanted—one from the outer and inner groups,—by bringing them through a slit in the Achilles tendon and fastening to the os calcis near its posterior tubercle.

In mild cavus deformity the Steindler stripping operation is used. If inversion is present the extensor digitorum longus is transplanted to the outer side of the foot through a drill hole in the fifth metatarsal. In the severe grade with more or less bony deformity a wedge is taken through the calcaneocuboid and astragaloscaphoid joints,—the long and short plantar ligaments divided beneath the cuboid and the plantar fascia subcutaneously.

Dangle foot with hip and knee muscles functioning is treated by; (1) Arthrodesis of the astragaloscaphoid, calcaneocuboid, and calcaneoastragaloid joints. The tibiotarsal joint is only partially denuded of cartilage to insure a little motion in the ankle; (2) after arthrodesis the Putti bone block and the Campbell bone block are used. If the knees and hip muscles are weak, complete ankylosis of the entire ankle joint is desirable, and besides arthrodesis a tibial bone graft from tibia to astragalus is used.

The Colon in Relation to Chronic Arthritis. E. C. Fishbaugh. Am. J. Surg. VII, 561, September, 1929.

The author feels that most cases of chronic arthritis with gastro-intestinal disease are of the infectious type of arthritis, and found that eighty patients out of 324 adults with infectious arthritis had abdominal pathology, who were free from any other foci of infection. Females predominate in the series, there being sixty-six females to fourteen males, with an average of forty-seven. Five conditions are found to be of importance; chronic constipation, chronic or subacute colitis, bands and adhesions, diverticulae, rectal crypts and hemorrhoids.

Treatment is along dietary and eliminative lines after surgical rectification of the abnormalities. Stress is laid upon the proper irrigation of the colon, especially in the right-sided ideal stasis type of case. The use of acidophylus culture is also recommended.

Several case reports are added which stress the importance of proper intestinal elimination in this type of case.

Reconstruction of The Hip Joint in Congenital Dislocations. Wm. J. Merrill. *Ann. Surg.* XC 106, Jul., 1929.

In old unreduced congenital hips, after manipulations have failed, the author advised an open reduction and the formation of a strong, new acetabulum by removing a rectangular section of the upper half of the acetabulum including the roof and the floor. This section is displaced upward and outward and tilted outward, extending this roof well out over the femoral head. The leg is fixed in abduction and this is maintained until the x-ray indicates that the bone will withstand weight-bearing. This position is maintained first by plaster bandages, then a walking brace until stability is assured, even for a period of five years after operation.

TUBERCULOSIS

Edited By

L. J. Moorman, M.D. and Floyd Moorman, M.D.
912 Medical Arts Bldg., Oklahoma City

Healing of Tuberculosis by F. M. Pottenger, M.D. *Annals of Internal Medicine* Sept. 1930.

The tubercle bacillus acting upon different individuals produces disease pictures of great variety, which are combatted with different degrees of effectiveness. According to the author, the program of defense differs according to whether it is a first or succeeding infection. The former is opposed at first by only the natural defense of the host, and later by a developing specific defense; the latter by both natural and specific defense from the start. We are always dealing with infection in the immune, so the specific factors in defense are always present and upon the degree of their competence depends largely the nature, the course and the outcome of the disease.

Healing in tuberculosis, according to the author, in the immune or adult type is accomplished thru several different processes: (1) destruction of bacilli; (2) retardation of the passage of bacilli thru the tissues; (3) elimination of bacilli thru natural channels by caseation and cavity formation; (4) development of a state of desensitization to bacillary and other toxins; (5) encapsulation or rendering inactive, viable bacilli which remains in the tissues; (6) ridding the body of the inflammatory products which accompany the infection; and (7) repair of the injury inflicted upon the body by the disease.

Healing depends on the power of the patient to meet successfully the various requirements of his own particular infection, no matter what they may be. Therefore, measures of therapy have been devised which have for their purpose the creating of the best possible physiologic balance on the part of each individual patient, and the keeping of his infection as mild as possible.

Rest is a matter of necessity, because we have a departure from the normal status of such a nature that exercise during the stage of active disease favors extension of infection, increase of toxemia, and lowers resistance, causing the patient's body functions to be carried on at a low standard of efficiency. Rest to the lung, such as comes from body rest, and such local measures as compression by weights, such as shot bags, strapping, operations on the phrenic nerve, pulmonary compression, whether by pneumothorax, or thoracoplasty, are of value. They all serve the purpose of giving the lung more rest.

A well balanced diet is essential to the best progress.

The Significance of Advanced Tuberculous Infection of School Children. By Eugene L. Opie, M.D., October 18, 1930.

The author in a timely article discusses the significance of the tuberculous lesions in school children. It varies widely:

A. Demonstrable tuberculous infection with the following characteristics is prevalent among healthy children and requires no special care to prevent its further development.

1. Infection revealed by the tuberculin test with no lesion demonstrable by roentgenologic examination.

2. Circumscribed pulmonary nodules that have undergone calcification.

3. Roentgenographically demonstrable tuberculosis of tracheobronchial lymph nodes.

B. Children with the following conditions are in danger of tuberculosis that will undermine health and should receive special care in open air schools, preventoria or by other means to prevent further progress of the disease.

1. Latent tuberculous infiltration of the childhood type evident in roentgenograms, often associated with tuberculosis of the tracheo-bronchial lymph nodes. In some instances, particularly in older children, these lesions are the scars of healed infection and do not require special care.

2. Tuberculosis of tracheo-bronchial lymph nodes with some calcification, recognizable by roentgenological examination, (a) when the child is still in contact with open tuberculosis; (b) when the tuberculin reaction is intense; (c) when the lesions are unusually large or very numerous.

Changes in the Respiratory Mechanism Following Phrenicectomy. By Walter L. Werner, M.D. *Journal of A.M.A.* October 18, 1930.

The author studied the changes in the respiratory mechanism following phrenicectomy on twenty patients. He summarizes it as follows:

(1) The vital capacity decreased in all patients.
(2) In all but one patient the tidal area decreased.

(3) The oxygen consumption remained practically unchanged.

(4) This compensation took place in three different ways:

(a) The compensation was achieved by an increase in the respiratory labor only.

(b) The compensation was achieved by a better

utilization of the inspired air with no change in the respiratory labor.

(c) The compensation was achieved only by a more efficient utilization of oxygen with a decrease in the respiratory labor. There was no evident correlation between the extent and the pathologic-anatomic type of the lesions and the mechanism of compensation following the operation.

3. Latent tuberculosis of adult type.

4. Arrested pulmonary tuberculosis, notably in children who have been discharged from sanatoria.

5. An active tuberculin reaction or an otherwise negligible tuberculous lesion recognized by roentgenologic examination in association with impaired health and conspicuous underweight, which are perhaps not referable to tuberculosis.

C. Children who should receive sanatorium treatment or its equivalent are:

1. Children with tuberculous lesions accompanied by symptoms and physical signs referable to tuberculosis.

2. Children with latent lesions of the lung either of childhood or adult type that on repeated roentgenologic examinations are found to be progressive.

3. Children with massive tuberculosis of tracheo-bronchial lymph nodes that has not undergone calcification.

BOGY OF HEART-BLOCK IN DIGITALIS THERAPY

William D. Reed, Boston (Journal A.M.A., June 22, 1929), asserts that the fear of the production of heart-block by digitalis medication seems to indicate a misconception of the therapeutic use of this drug. Heart-block is not a prominent feature of the toxic action of digitalis. In fact, some degree of impairment in auriculoventricular conduction usually appears at the dosage associated with the therapeutic effects. There are no records of adequately studied patients who have died solely as a result of digitalis-induced heart-block. Complete heart-block may sometimes be present for years in patients who experience little if any reduction in their ability to perform heavy muscular work. The ventricle possesses tissue that is capable of initiating contractions, and the circulation adjusts to the slowed rate without untoward symptoms. Heart-block, not drug-induced, is usually associated with some serious form of heart disease whose lesions are not limited to the junctional tissues. It is the widespread and often progressive lesions of these diseases which doubtless have caused heart-block to be considered serious. The production of therapeutic heart-block of a degree sufficient to slow the ventricular rate to normal, in such conditions as auricular fibrillation with an accelerated heart (ventricular) rate, is an established principle in the use of digitalis medication. It is occasionally beneficial to convert partial into complete heart-block. Digitalis is often of benefit in complete heart-block with insufficiency of the heart. Reid concludes that the inordinate fear of the production of heart-block by digitalis may be disastrous in those cases in which the patient's only chance is dependent on the full therapeutic effects of the

drug. Digitalis should be administered until beneficial results are obtained or there is evidence of toxic effects.

GASTRIC DIGESTION OF MEAT IN HEALTH AND IN DISEASE

In the diseased patient as exemplified by the chronic invalid with cardiac or renal disease, blood dyscrasia, and other conditions commonly encountered in medical ward service, the gastric digestion of meat is somewhat impaired. The results recorded by Martin E. Rehfuess and George H. Marcil, Philadelphia (Journal A. M. A., March 9, 1929), were obtained after the ingestion of 60 Gm. portions. The significance of this was not determined experimentally, but it is probable that figures somewhat lower are obtained when smaller quantities of meat are ingested. In purely functional conditions and probably with peptic ulcer, meat digestion is not impaired so far as the secretory function is concerned. The authors would emphasize the necessity of examining all persons who show a minimal secretory response with an Ewald meal and a meat meal. In a certain proportion of cases the responses are prompt and direct with meat. Such a response offers a better prognosis. Failure to respond to both an Ewald meal and a meat meal may be of serious prognostic importance. They encountered this lack of response in pernicious anemia and gastric carcinoma. On the other hand, it was seen also in delayed resolution in lobar pneumonia and in chronic cholecystitis. A failure to respond to an Ewald meal is much more common than failure to respond to a meat meal. The authors believe that there is a normal difference in the total acidity produced by meat and breadstuff, in favor of the former to the extent of probably 30 per cent or more. Persons giving a similar response to bread and meat cannot be considered normal. Rehfuess and Marcil believe that the use of the two meals gives more reliable evidence of mucosal efficiency, particularly when subacid or anacid responses are obtained with an Ewald meal. The explanation of the greater response of the normal stomach is not attempted in this communication. Meat is a true intragastric stimulant, in health capable of producing a maximum response on the part of the gastric mucous membrane. That this response is altered in disease must be evident from the limited number of cases here studied.

VARICOSE VEINS AND THEIR SEQUELAE

One hundred and sixty cases of varicose veins and their sequelae were studied by Geza de Takats, Chicago (Journal A. M. A., March 9, 1929), as to age and sex incidence. More than 1,000 injections with 50 per cent dextrose were made. An individualizing management, consisting of supportive, injection and surgical treatment or their combination is described. The histological reaction of the vein following injection has been studied. Immediate results of the various forms of treatment are tabulated. The possibility of pulmonary embolism following injection treatment and surgical treatment discussed. The end-results of the surgical and injection treatment can be estimated only after five years. Recurrences are well known to occur after radical excisions and may be expected following the injection treatment.

ALLERGIC PURPURA

H. L. Alexander and C. H. Eyermann, St. Louis (Journal A. M. A., June 22, 1929), have called attention to the occurrence of allergy with Henoch's purpura and cite six new cases. In each instance it was demonstrated that the lesions were caused by the ingestion of particular foodstuffs. In two other patients, allergic manifestations and purpura coexisted but no particular foodstuff was incriminated.

MANUFACTURED WEATHER

The so-called present high standard of living, which contrasts so markedly with that of a generation ago, depends for its maintenance on circumstances arising in large scale production and standardization. Perhaps no more striking characteristic of modern industry can be mentioned than its gradually developing independence of nature. It is only by the assurance of dependable uniformity in supply of raw material, in transportation and in mechanical power that quantity production with the net gain to the consumer has been made possible. One of the factors of large importance to many industrial processes is grouped under the term "atmospheric conditions." In a recent account Lindsay¹ has described the rise of the new ventilation engineering and has pointed out the wide application already made of this specialty in a variety of industries.

The temperature, moisture and movement of air are of considerable importance in many manufacturing processes; in the past, the location of mills frequently depended on the prevailing atmospheric conditions of a region. The situation is now largely changed and, by the use of the newer methods of air conditioning, materials can be dried or made moist, rapidly or slowly at any temperature desired. Such procedures as the drying of pottery, the curing of tobacco and the moistening of leather for the uppers of shoes are now in many plants dependable and under perfect control, requiring far less time and floor space and resulting in a more uniform product

with less breakage and spoilage than with the older methods. The manufacture of rayon, of which 98,000,000 pounds was made in the United States last year, requires controlled air conditions throughout the process. The milling of the finest grades of flour involves an accurate adjustment of temperature and moisture conditions in the atmosphere, while the processing, wrapping and sealing of many of our food products is possible on a large scale only because the air in the factories is "manufactured" to order.

It is obvious that, when the air of a manufacturing plant is conditioned, the persons employed are benefited. Since happiness and efficiency are increased when people are physically comfortable, many installations of air-conditioning apparatus have been made for this purpose alone. Furthermore, uniform air conditions during working hours tend to minimize the economic and industrial losses from the common so-called respiratory diseases. The use of cleansed, cooled and dehumidified air in summer and of warmed and properly humidified air in winter cannot but add to the enjoyment of a performance in a movie theater.

While modern industry is thus increasingly availing itself of the products of scientific research, the effects on the individual employee are not always so beneficial as in the case discussed; indeed, the circumstances surrounding the manufacture of certain widely used products may constitute an industrial hazard of the most dangerous type. Only recently attention has been directed in these columns² to the insidious effects of the radiations from radium paint used to letter watch dials, speedometers and similar pieces of apparatus. The outlook for those affected is so hopeless that renewed emphasis should be given to the tremendous importance of enforced prophylaxis, and nothing should be left to chance or perfunctory advice. The fabric of modern society is so complex that progress made in one direction usually necessitates readjustments, not all of which are happy.—Jour. A. M. A., July 6, 1929.

1. Lindsay, D. C.: J. Indust. & Engin. Chem. **21**: 502, 1929.

2. Radiosensitivity of Bone, J. A. M. A. **92**: 1447 (April 27) 1929.

REPORT OF EXAMINATION FOR LICENSES TO PRACTICE MEDICINE

Examination held at State Capitol, Oklahoma City, September 9th and 10th, 1930.
The following applicants passed:

| Name | Year of Birth | Place of Birth | School of Graduation | Year of Graduation | Home Address or Previous Location |
|--------------------------|---------------|--------------------|----------------------------------|--------------------|-----------------------------------|
| Baylor, Richard Aloysius | 1906 | What Cheer, Iowa | Univ. Iowa | 1929 | Fairfax, Okla. |
| Burpee, Geo. Drederick | 1904 | Janesville, Wis. | Washington Univ. | 1929 | Druunright, Okla. |
| Dever, Harvey Kendall | 1906 | Gifford, Mo. | Kansas Univ. | 1930 | El Reno, Okla. |
| Howe, Julius Holland | 1887 | Spencerville, O. | Univ. Louisville | 1916 | Ponca City, Okla. |
| Lewis, Edwin | 1866 | Blakesburg, Ia | Central Med Col. St. Joseph, Mo. | 1903 | Oklahoma City |
| Lindley, E. C. | 1905 | Stanberry, Mo. | Washington Univ. | 1929 | Duncan, Okla. |
| Lindsey, Ray Harvey | 1904 | Elmore City, Okla. | Northwestern | 1929 | Pauls Valley, Ok. |
| Jones, Isaac Grady | 1888 | Petersburg, Tenn. | Vanderbilt | 1919 | Broken Bow, Ok. |
| Pace, Lloyd Rio | 1886 | Benton, Ky. | Univ. Louisville | 1909 | Seminole, Okla. |
| VanSandt, Bax Morton | 1904 | Wewoka, Okla. | Univ. Cincinnati | 1930 | Wewoka, Okla. |
| Ward, Benjamin Walter | 1901 | New Orleans, La. | Tulane Univ. | 1925 | Tulsa, Okla. |
| Cunningham, John Perry | 1900 | Green Forest, Ark. | Baylor Univ. | 1930 | Oklahoma City |
| Glomset, John Larson | 1901 | N. Dakota | Washington Univ. | 1930 | Oklahoma City |

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President, 1930-31, Dr. E. S. Ferguson, Oklahoma City.
 President-elect,
 Dr. Howard C. Weber, Bartlesville.
 Secretary-Treasurer-Editor, Dr. Claude A. Thompson, Muskogee.
 Meeting Place, 1931, Oklahoma City.
 Delegates to A. M. A.: Dr. Albert W. Cook, Tulsa, 1931-32; Dr. Horace Reed, Oklahoma City, 1931-32; Dr. McLain Rogers, Clinton, 1930-31.

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Surgery: Dr. W. C. Vernon, Chairman, Okmulgee; Dr. Leonard Williams, Secretary, 1200 North Walker, Oklahoma City.

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SPECIAL COMMITTEES 1930-1931

Tuberculosis Study and Control, Dr. L. J. Moorman, Chairman, Oklahoma City; Dr. F. P. Baker, Tahmina; Dr. R. M. Shepard, Tulsa.
Conservation of Vision, Dr. W. A. Cook, Chairman, Tulsa; Dr. C. B. Barker, Guthrie; Dr. Milton K. Thompson, Muskogee.
Conversation of Hearing, Dr. L. C. McHenry, Chairman, Oklahoma City; Dr. Chas. M. Fullenwider, Muskogee; Dr. H. S. Brown, Ponca City.
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Crippled Children, Dr. Wade Sisler, Chairman, Tulsa; Dr. Earl D. McBride, Oklahoma City; Dr. W. K. West, Oklahoma City.
Necrology, Dr. Ellis Lamb, Chairman, Clinton; Dr. R. M. Anderson, Shawnee; Dr. J. S. Fulton, Atoka.
Publicity, Dr. C. A. Thompson, Muskogee.

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STATE COMMISSIONER OF HEALTH

Dr. C. W. Beson, Oklahoma City.

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District No. 2. Roger Mills, Beckham, Greer, Harmon, Washita, Kiowa, Custer, Jackson, Tillman, Dr. Frank H. McGregor, Mangum. (Term expires 1932).
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MEDICAL ASPECTS OF DENTAL HYPOPLASIA AND CARIES IN CHILDREN

WILLIAM M. TAYLOR, B.S., M.D.

Professor of Pediatrics University of Oklahoma

President's Address to State Pediatric Society, Shawnee, June 1930.

Systematic examination of school children begun about fifteen years ago, called the attention of the laity, dental profession and those interested in the medical care of children to the strikingly high incidence of carious teeth. The percentage ranging from eighty to ninety. The incidence in England according to Still, was nearly parallel.

I am of the opinion, though no statistics are available, the preschool child will show an equally high percentage. Till this time but little attention had been paid to prevention or treatment of decayed teeth or oral infection. At the present time many experiments are being carried out and interesting observations made by such research workers as M. Mellanby, of England, Percy R. Howe and Hanks of this country, the conclusions of whom I shall refer to.

A. T. Pitts (Garrod's Diseases of Children, 2nd. Edition) defines hypoplasia as defective calcification of the teeth, leading to pitting, discoloration or actual loss of part or whole of the enamel with irregular calcification of the dentine. Thus dental hypoplasia finds a place in this discussion because defective calcification probably is a predisposing cause to dental caries. Hypoplasia may affect both the deciduous and the permanent teeth. If the deciduous, it must be active at about the fourth month of intrauterine life, at which time calcification begins and continues till only a few months after birth. It is during this time that the factors concerned in its production must be sought and M. Mellanby

suggests it is due to vitamin deficiency in the mother's diet at this time.

Hypoplasia of the permanent teeth as evidenced by pitting, transverse striation, etc., occurs during the first six to seven years of life. Many acute and chronic diseases profoundly affect the teeth. Both tooth structure and general development are influenced. The effects are noticed during the course of the disease or during convalescence. Those conditions which affect nutrition stand foremost, especially those of the gastro-intestinal tract, and the so called deficiency diseases, such as scurvy, rickets and pellagra. Same is true of acute diseases such as scarlet fever, measles and diphtheria.

Children suffering from ductless gland disorders, as the Cretin, have defective teeth with a tendency to decay early. The constitutional diseases, tuberculosis and syphilis, furnish a picture familiar to every practitioner and dentist, with their early tendency to decay.

Now the condition which I have here attempted to describe is of course, not the picture of dental caries but, I think, indissolubly associated as a contributing factor. The dark worn down tooth may illustrate this condition best, though no caries be present.

By dental caries is meant the progressive destruction of the calcified tissues of the teeth, often with infection and a resulting pus formation. Dental caries is an important source of disease in early life and one too often overlooked by both laity and even those who have to deal with the diseases of childhood. Effects (more or less remote) for which carious teeth may be responsible:

1. Digestive disorders with wasting due to bolting of food or from septic absorption.
2. Loss of appetite.
3. Anemia at times quite profound.
4. An alveolar abscess may form

as the result of death and infection of the dental pulp, resulting in so called "gum boil" or "sinus."

5. Involvement of adjacent lymph glands. These glands being permanently damaged may represent a "locus minoris resistentia" thereby predisposing to tuberculous adenitis.
6. Still says dental worry in a child may be the starting point of facial "habit-spasm," which disappears after dental care of carious teeth.
7. Severe headaches of fleeting nature may be a result.

On the other hand illness in childhood may produce dental caries as above referred to. It is impossible to deny the hereditary tendency in certain families to caries and as some dental authorities claim, there may be an inherited tendency to thin and imperfect enamel, just as one child may have fine hair and another coarse. Seemingly there is more than one cause for dental caries. These might be grouped under:

1. Heredity.
2. Hypoplasia as a result of improper or deficient diet, infections, acute or chronic.
3. Acid formation of a metabolic nature plus the acid condition of the mouth, resulting from excessive bacterial fermentation, or adherent carbohydrates about the tooth, with resulting damage to the enamel, which often marks the beginning of caries.

These three conditions may represent successive phases in production of caries.

M. Mellanby of England, Howe and Hanke, this country, have suggested, after much experimental work, the association of vitamin deficiency, as a cause of hypoplasia and dental caries. Mellanby states that good or bad calcification of teeth can be produced at will by altering in the diet the relative amounts of calcifying vitamin as contained in milk, egg yolk and cod liver oil; vitamin A and D.

(Pearson & Wylie) These observations bring out the importance of diet and especially of vitamin D in relation both to the growth of the teeth and develop-

ment of caries, and just as this vitamin helps to prevent and cure the bone and teeth changes in rickets, so too, it is obviously necessary for the proper development of teeth in all children. It is likely, too, that vitamin B has a share in the "building up" process in the teeth, as well as the bones. Boyd of the University of Iowa, reports some interesting observations conducted there. A specially prescribed diet seeming clinically to bear out the findings of Mellanby as to the direct action of diet on caries.

It must be clear from the foregoing brief and incomplete sketch of some of the dental problems of infancy and childhood, that the pediatrician must have a definite interest in preventive dentistry.

Patient inquiry, careful systematic and intelligent examination will commonly reveal the underlying cause of the disordered nutrition which reflects itself in the oral condition and points out the way to proper relief.

J. D. Boyd, of University of Iowa, has shown how something may be brought home in a practical way, in the management of these cases. Boyd chose a group of children, from the orthopedic service, with dental caries of varying severity, prescribed a special diet to be taken daily and with whatever they cared for in addition to this form the regular menu. With practical uniformity all showed an arrest of the caries, as evidenced by the change in the consistency of the dentine from the initial state to one of stony hardness with no advance in the destructive process. A specially prescribed complementary diet for each child was given, such as is designated, "one high in mineral and vitamin content," and thus favoring calcification. Special daily diet consisted of:

Whole milk, one quart.
Cod liver oil, one teaspoonful.
Yolk of one egg.
Juice of one orange.
Butter, one ounce.
Two green vegetables.

Prevention of Caries: It will be evident from the foregoing remarks that a very broad view must be taken of the subject of caries, and that its prevention can only be hoped for if we envisage not only local, but general factors in its causation. In the first place investigations have clearly shown that predisposition to caries occurs in early infancy, not only as the result of

rickets, but apart from this disease, as the result of improper feeding. Further, that caries of the temporary teeth forms one of the most prolific causes of derangement of their permanent successors with consequent deformity of the maxilla. This fact is not sufficiently realized, and the tendency has been to minimize the importance of preserving the temporary teeth until they are normally shed. Since caries is largely responsible for premature loss of teeth, it is of great importance to endeavor to control its onset at the earliest age. Prevention of caries can be attained by attention to:—general hygiene, including sufficient fresh air and sunshine. (Prenatal). Diet:—This must not only be properly balanced as regards salts and other ingredients but contain sufficient vitamins such as prescribed above, A and D.

It should be seen that diets contain sufficient fat, protein and salts, and that vegetables and fresh fruit are amply represented.

The importance of breast-feeding for the sake of good teeth, as well as for other reasons, cannot be too strongly insisted upon.

Oral Hygiene: Artificial cleansing by use of tooth brush, night and morning and after meals is to be encouraged as a habit early in childhood, but does not prevent caries.

The cooperation of the dentist should be sought and caries in the early stages can be treated by conservative measures with considerable success. But as pediatricians we voice the dictum that where a tooth is too bad to be filled it's bad enough to be pulled.

CONCLUSIONS

Prenatal care.

1. Deficiencies in the pregnant mother's diet may have to do with the structure of the deciduous teeth. What diet in the mother?

2. Food factors in the development of teeth:

- (a) Foods having high mineral content as milk, butter eggs, cod liver oil and orange juice.

- (b) Fresh fruits and vitamins.

3. Oral hygiene to be encouraged.

4. Dental advice and examination by a competent dentist twice yearly.

CLINICAL OBSERVATIONS ON THE USE OF A LIPOIDAL EXTRACT OF CORPUS LUTEUM: LIPO-LUTIN

M. B. GLISMANN, M.D.
OKMULGEE

Early in the history of the study of internal secretions, the Graafian follicle and corpus luteum were recognized as factors in the menstrual cycle. For many years the medical profession attempted to treat various dysfunctions with luteal preparations. Results in the main were discouraging and luteal therapy fell more or less into disrepute.

The development of the "vaginal smear" method for determining the potency of any ovarian hormone—the credit for which goes to Allen and Doisy—and the use of this in the standardization of hormonal preparations into "rat units" has explained many of the former difficulties and placed this matter of gestational hormone therapy on a newer and more rational basis.

Thousands of papers have been written on the theory and theories of the interrelationships existing between the Graafian follicle, the corpus luteum, the interstitial cells of the ovary, the pituitary, not to mention the placenta, the amniotic fluid, and other still less related structures. It is not our purpose to argue the theory nor yet to review the literature. Our position on the theory was explained in a paper read before this body at a previous meeting. The purpose of this paper is to step wholly into the field of therapy and give for your consideration some observations on the use of lipo-lutin, a potent lipoidal extract of corpus luteum, which is prepared by Parke, Davis and Company.

In a discussion of this kind, it is almost imperative to use a disconnected or note method of presentation. The subject naturally divides itself into two divisions; the use of corpus luteum in the pregnant and in the non-pregnant.

In the pregnant state, the condition which is first brought to our attention is the characteristic nausea and vomiting. It is here that the watery extract of corpus luteum provided so many disappointing results. Let me state that we do not minimize the neurotic element which plays such a large part in the condition, nor do

we neglect the routine care of these cases by dietetic regime and the removal of irritating factors as far as that may be done. However, we do not subscribe to the theory that the nausea and vomiting of pregnancy is purely a neurosis, for it seems impossible that such a large percentage of women should develop this condition in the first tri-mester of pregnancy. While it has never been definitely proved that there is a deficiency of corpus luteum or its hormone in this period of pregnancy, yet during this time the organism is under an excessive strain in adjusting itself to its new economy; and this means, in the last analysis, endocrine adjustment. Since the luteal body is the new factor in this adjustment, it is not unreasonable to suppose that it is the dominating factor in this condition.

For some time it has been our practice to use injections of lipo-lutin for this condition with what we feel are very gratifying results. In our small series of some twenty cases, nausea and vomiting have been practically completely controlled within twenty-four hours, in most cases never to return except as an occasional slight nausea in the morning. In a few cases a second or third dose has been required at intervals of one or two weeks. Occasionally, the results are startling.

Case No. I: Mrs. S. J. S., 25, para 2. The first pregnancy resulted in an uncomplicated miscarriage at three months in July 1928. Family history negative, her personal history shows a "nervous breakdown" at the age of eighteen. However, she seems to be very well stabilized and free from the usual nervous traits. Last period the 29th of September, 1929. On November 29th she came to the office complaining of excessive nausea and vomiting, onset two weeks previous, with the severity increasing, so that for the past four or five days she had been unable to retain any food. She looked sick. Gave one ampule of lipo-lutin subcutaneously. The next day she returned, her appearance entirely changed and stated that she felt fine but that she "was afraid she was going to vomit once when she ate some very rich turkey hash." Nausea and vomiting has never returned even though she had a very severe cold early in February.

Case No. II: Mrs. L. S. B., 20, para one. History of pus appendix with removal in 1925, tonsillectomy in 1920, subsequent

health excellent. Last period May 8, 1929, was seen on July 15, suffering from nausea and vomiting, very profound, of two weeks duration. Had lost weight and showed some water loss. One ampule of lipo-lutin was given, resulting in a marked improvement the next day which allowed her to retain some food. After three days a second ampule completed the stabilization. Her improvement was so marked that she insisted on an ampule at ten days to two weeks intervals for a month although at no time was nausea and vomiting excessive.

Threatened abortion is a factor ever to be feared in pregnancy. It ranges in severity from slight nagging pains and a bearing down feeling through all its gradations of severity to the woman who aborts as regularly as she becomes pregnant. In our experience, the symptoms and the danger are greatest at the time of the recurring menstrual cycles. Many factors play a part in this phenomenon. If the cause be a degenerate sperm or imperfect ovum with the consequent abnormal fetus as a result of fertilization, then of course we perform a real dis-service if we can and do prevent the abortion. As a matter of fact these cases usually go on to inevitable abortion. The more usual factor is pelvic inflammation which results in an increased sensitivity and irritability of the uterine muscle.

Whatever the factor, then, toward the abortion, the mechanism of the abortion itself is the same as the mechanism of full term labor. The corpus luteum degenerates; its hormone disappears, with the resulting release of the oxytocic principle of the pituitary hormone. The same rhythmic contractions of the uterine muscle result. We believe that the same mechanism operates in the sub-maximal cases; that at the period time there is a lessening in the effectiveness of the luteal hormone and a consequent relative increase in the blood stream of the oxytocic principle of the pituitary. This results in uterine cramps whose severity is proportionate to the preponderance of the pituitary. If this reasoning is correct, then a potent luteal extract should control these symptoms and prevent the abortion.

This has proved true in our experience. Indeed, in one case of inevitable abortion with the presence of five months twin fetuses, dead for some time, the conclusion of

the labor was delayed three days by the use of lipo-lutin alone, one ampule holding the pains in complete abeyance for twenty-four hours at a time. We have already reported a case of fourteen abortions without a living baby which was carried to a successful conclusion on the fifteenth pregnancy by the use of potent corpus luteum. It is our custom to give, subcutaneously, one ampule of lipo-lutin immediately upon the appearance of these cramping uterine pains during pregnancy or upon the evidence of an increased irritability of the uterus. So far we have been very gratified with our success (as it has produced an immediate amelioration of the symptoms). In those cases where there is a history of one or more abortions since the last successful pregnancy, we employ this as a routine measure five days to a week prior to each menstrual cycle. Needless to say, the neurotic element does not enter into this condition and it cannot be charged that suggestion is responsible for results. Case reports could be multiplied but there seems no need for them in this connection.

In the non-pregnant state, lipo-lutin has produced results in those cases of menorrhagia which were systemic or endocrine in origin. It would, of course, be unreasonable to expect to control hemorrhage due to retained secundines, uterine and cervical cancer, or fibromyomata. It is a little more difficult to understand the rationale of treatment in these cases when degeneration of the corpus luteum and the loss of the luteal hormone are the physiologic factors which permit the onset of menstruation. It is perhaps reasonable to assume that the luteal hormone acts as a governing factor or check upon the other endocrine glands involved and that its disappearance is so complete at the onset of menstruation, that uterine bleeding continues excessively or even indefinitely. Whatever the mechanism, the following case reports are excellent examples of the efficacy of the luteal hormone to control the untoward phenomena.

The first case is an extreme menorrhagia in a young girl without other pathology than an endocrine imbalance.

Miss M. T., 16, gives an essentially negative family history, her personal history negative except for very severe recurrent tonsillitis which was cured by a tonsillectomy in 1928. Her first menses was at the

age of thirteen, was free and painless, lasting nearly a week. From that time to the age of fifteen, the periods were very irregular, sometimes two or three months apart, but the flow was excessive, lasting six to eight days. At about fifteen, her periods became regular, the character of the flow being unchanged. Beginning in September, 1929, the duration of the flow increased and in October, 1929, she flowed constantly for three weeks. Hemoglobin count at that time was 45%. From that time on the condition grew rapidly worse and the girl was scarcely ever free from bloody discharge. The amount of flow increased throughout January and February. When first seen on March 17 in consultation with Dr. W. C. Mitchener of Okmulgee, and Dr. W. G. Bisbee of Bristow, she had been flowing constantly for two weeks and on March 15, had begun to have an extreme uterine hemorrhage. Her hemoglobin had dropped to 12%, her red blood count 1,200,000. Rest in bed, the various oxytocic drugs, ice packs, etc., had proved entirely unavailing. Examination showed a small hypopituitary type girl, profoundly exsanguinated, slight tenderness in each iliac fossa, and a temperature ranging up to 101 degrees. Examination showed no evidence of pelvic infection and no possibility of pregnancy as a factor. She was given one ampule of lipo-lutin and by morning of March 18, the hemorrhage was nearly controlled. The second ampule caused a complete cessation of hemorrhage. Her anemia was controlled by blood transfusions. No uterine bleeding until April 23 when she flowed five days very freely and then stopped. No further periods have occurred.

The menstrual flow in tuberculosis is generally considered to be very harmful to the patient since it depletes the blood supply and with its accompanying nervous phenomena, increases the metabolic activity of the patient to whom rest is so essential. Many men studying this subject are recommending and practicing the temporary removal of menstruation by radiation of the ovaries.

When, as often happens in incipient tuberculosis, the menstrual flow is not only present but assumes the magnitude of menorrhagia, the problem becomes acute. In the one case of incipient tuberculosis with menorrhagia which we have seen, the menstrual flow would last from ten to twenty days out of each month and the general

condition was definitely harmed thereby, as evidenced by increased elevation of temperature and weakness. The exhibition of one ampule of lipo-lutin at the onset of the period would cause a cessation of the flow within twenty-four hours without re-occurrence until the next cycle.

The third case illustrates the use of lipo-lutin in those cases of menorrhagia with irregularity of the menstrual periods where a causative factor is general exhaustion, physical, mental, and probably sexual.

Mrs. J. T. D. is 31 but looks 45. She complains of many varied and ill-defined pains—headache, backache, and of a “tired feeling”—which makes her unable to apply herself to her regular work which is that of a household helper. She states that for many months her menstrual periods have been very irregular, occurring as often as every two weeks, the flow lasting from seven to ten days with excessive flow and some clots for the first four or five days during which time she has a lot of pain. Her history shows she is the mother of four small children with several miscarriages, some of them probably induced. Besides caring for her home, she supplements the family income by doing odd jobs of house work or going out at night to care for children. Her husband works only when it is forced upon him; at the same time he objects to her working as it leaves him alone when he is out of work. Their choice of amusement does not help the picture as it consists of attending and participating in every “holy roller” meeting in the county. Examination shows an undernourished, frail little woman, highly nervous. There is no definite pathologic entity disclosed upon examination. Pelvic findings are absolutely normal. The use of an ampule of lipo-lutin at the onset of menstruation reduced the flow to three days. By its use over a period of two months, aided, of course, with tonics and sedatives, the general condition improved; the menstrual periods became regular at twenty-eight day intervals, and the average flow was reduced to four days with a normal quantity. When last seen, her menstrual condition had been perfectly normal and her general condition was much improved.

Two other conditions of the non-pregnant state are undoubtedly endocrine in origin and should furnish a field for ther-

apeutic investigation. Theoretically, at least, the dysmenorrhea due to excessive spasm of the infantile uterus and the distressing irregular menorrhagia of the menopause, should yield to potent luteal therapy. It is our hope that later we may be able to report our findings in these conditions.

CONCLUSIONS

1. The therapeutic indications for corpus luteum need revision and re-study since we now have a lipoidal extract, lipo-lutin, which is stable and potent instead of the watery extract which proved to be practically inert.

2. Lipo-lutin is a very powerful adjunct in the treatment of nausea and vomiting of pregnancy, sometimes acting almost as a specific.

3. Lipo-lutin will increase the luteal hormone preponderance in the system thereby counteracting the oxytocic principle of the pituitary. It thereby eliminates the uterine contractions and pains which occur most frequently at the menstrual cycle time, makes the patient more comfortable, and undoubtedly in certain instances, prevents abortion.

4. In the non-pregnant, lipo-lutin controls the hemorrhage in those cases where the causative factor is endocrine and not mechanical.

5. Dysmenorrhea and the excessive hemorrhage of the menopause furnish fields for the further investigations of this product.

216 McCulloch Building.

DISCUSSION: *Geo. R. Osborn, M.D., Tulsa.*

Dr. Glismann's observations are extremely interesting. I want first to commend his method of making his deductions or observations, from what appears to be well kept records of his cases.

No accurate conclusions can be made from any series of cases or experiments when one depends only upon his memory.

Lipo-lutin is without doubt more potent than the aqueous lutein extract. I have used it in the treatment of vomiting of pregnancy with astonishing results, in fact the results were so marvelous that I have become a little suspicious because I have seen cases respond similarly to glucose solution administered intravenously. Cholelith pills have likewise cured a number of patients. I agree with the doctor that the percentage of cases of hypereme-

sis, due to neurosis has been over-estimated. We all know that many of these women are sick. I do not like the term "neurosis," it doesn't mean much to me. A man may have a severe headache, one that will not respond to aspirin, acetidine, et cetera, but put him on a golf course and one good drive will cure his headache. I wouldn't say his headache was a neurosis but I would recommend golf for that kind of a headache.

I think this paper is valuable in that it is suggestive of what we do not know about endocrinology and that research in the near future will solve many of the mysteries and change many of our present ideas of human physiology. Some day we will know our hormones as the poultryman knows his eggs. What we actually know of them now is comparable to what was known of electricity when Benjamin Franklin flew his kite.

Lipo-lutin does prevent abortion, it inhibits uterine contractions. I think we should, however, think of this remedy as the extract or hormone from the lutein corpuscle and try to forget this trade name. In so doing we will be less empirical and much more scientific.

I want to thank Dr. Glismann for this paper because I think many, like myself, need our enthusiasm revived occasionally to encourage us to be on the watch that we do not become victims of routine and thoughtless procedure.

DISCUSSION: *Dr. H. J. McGuire, Tulsa.*

In discussing this paper there are some points I want to bring out, however, if I am entirely wrong please forgive me. Dr. Glismann states that the question of metrorrhagia or menorrhagia in tuberculosis is a common thing. In my understanding, however, menorrhagia is not a common thing in tuberculosis. On the other hand, it seems to me the policy of Nature to maintain a sort of balance in this condition by amenorrhea; and that both in toxic thyroid and tuberculosis instead of having increased flow at the menstrual period we have decreased flow, and in my experience and with what little I have read, I believe that amenorrhea is the thing that we find instead of menorrhagia. I would like to ask Dr. Glismann the question of whether or not and in what percentage of cases he has found increased flow instead of decreased flow in tuberculosis. The other thing I would like to ask him about is the

statement regarding the use of a drug by mouth, ovarian extract or corpus luteum extract. In my understanding, I feel that any ovarian extract, tablet or capsule form, that the gastric juices destroy whatever activity that drug may have, and I wonder if Dr. Glismann may tell me what particular ovarian extract or what two particular ovarian extracts may cause that so-called reaction we may expect by having the patient spend five or six dollars for one hundred capsules.

Dr. J. F. Kuhn, Oklahoma City: I think the important part of the discussion was touched upon by Dr. Osborne in his closing sentence, and should be given a great deal of consideration. What does routine mean in the use of some remedy that you hope will give results, particularly is this true in the menorrhagia near the menopause. It is likely to be a dangerous procedure, therefore, the various drugs, in the hands of the average practitioner who fails to give proper study of each case and who fails to make complete routine examinations before giving the drugs. It is quite a common thing to undertake some experiment with drugs to see if the patient is going to be benefitted. Many fail to study their patient before determining upon treatment, and this is likely to lead to just that. No woman has been examined unless a very careful and thorough examination of the pelvis is made before any therapeutic treatment is determined upon.

Dr. J. E. Hughes, Shawnee: Based on the assumption that vomiting of pregnancy may be due to disturbance of the hormones, the giving of whole blood, taking the blood of the husband, one ounce, and then in 24 hours repeating this, has been in my observation of great benefit in a great many of these cases. They react with results that are almost magic. But I wonder whether or not the theory of the vomiting of pregnancy is correct, whether the true cause is not due to disturbances of the sex hormone.

Dr. W. A. Dean, Tulsa: I have a patient whose appendix and right ovary were removed at the age of 17, and just after she had gotten pregnant she had a cystic left ovary removed. I tried giving corpus luteum and carried this on through the nine months and she had no miscarriage.

Dr.———(Name not given): This is an

excellent paper, and I think shows more or less experience. The professors of obstetrics used to tell us where we find everything recommended for one particular disease, none of them are very good, and that is my experience lots of times with vomiting of pregnancy, or was until corpus luteum came along. I remember once an oil man's wife came to me and said, "Doctor, I believe I am pregnant and I haven't been that way for ten years. I just can't stand the vomiting and nausea." This was the fifth week. I happened to think of corpus luteum, and she was magically helped. She came every five days for the nine months, and it gave her a good deal of satisfaction. I have a great deal of confidence in its use in metrorrhagia and menorrhagia as well as in the nausea and vomiting of pregnancy.

Chairman: If there is no further discussion, I will ask Dr. Glismann to close.

Dr. Glismann: Mr. Chairman and gentlemen. I want to thank you folks for your very generous discussion of this paper. In regard to Dr. Osborne's two particular points, that we do not know the hormones and do not know all their relations, that is perfectly true. As I said in the paper, I have made no attempt either to report on the theories or to explain the results of these cases on the basis of theory. I have given you the results in the few cases in which we have tried this thing out, with one idea, the idea that you will recognize it and bring more light to bear upon the results of corpus luteum. It is only upon patients that we can learn the effect of drugs or medication of any kind, and that is one reason I read the paper. That of course brings up Dr. Kuhn's point, that examination is essential. Certainly it is essential. If we are to draw any adequate conclusion we must know the condition of the patient which we are treating. Dr. McGuire, in reply to your questions, I am not going to discuss the proposition of oral therapy; I will leave that to my friend, Dr. Turner, and I will not discuss oral administration. As for your other point, excessive bleeding in tuberculosis, we will grant you the usual thing in late tuberculosis or the advanced stage is amenorrhea. On the other hand, I bring to your attention this one case in a series of cases; I bring to your attention that menstrual periods in the tubercular, and it occurs early in tuberculosis, are a disadvantage. I think

this is recognized by all those who have much to do with tuberculosis, and in this case which I had where there was excessive bleeding in tuberculosis, corpus luteum worked very well. There was an article about this in the A.M.A., an article by Costellani in Italy, who made this same observation in a series of cases. I can get that article for you. That paper was written two years ago. I remember his name and that he was Italian. I am glad to see that in the past two years Dr. Osborne and Dr. Dean have used this, apparently following my previous paper—I appreciate that honor very much—and found corpus luteum successful in preventing abortion. I think that is very important, and I am delighted to find that Dr. Osborne feels it useful in nausea and vomiting of pregnancy. Dr. Hughes' suggestion of injection of the husband's blood is aside from this paper, and I know nothing about it and cannot discuss it. Thank you very much.

MENINGOCOCCIC MENINGITIS

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This paper presents an analysis of 163 cases of meningococcic meningitis treated at the Isolation Hospital, St. Louis, during the years 1916-17-18 and 201 cases during the years 1926-27-28. The greater part of the discussion, however, will deal with the routine treatment, course of the disease and results which were obtained in the latter series. The comparison of these two three-year periods is made in order to emphasize the more favorable results which seemed to follow certain changes in the method of treatment. A three-year period is sufficient to give a fairly large series of cases and will lessen the importance of such factors as seasonal variation, strain of organism, differences in age, sex, color and social condition of the individuals in two groups.

Meningococcic meningitis is an acute infectious and contagious disease due to the diplococcus meningitis which usually involves the meninges of the brain and spinal cord, but may invade the blood stream and other organs. The onset is abrupt with persistent headache, nausea, vomiting, irregular temperature and pulse, pain in the back of the neck or along the vertebral column, followed by stiffness of the neck and back, restlessness and irritability or

occasionally stupor. Such symptoms are not limited to the epidemic form of the disease but may occur in meningitis of other types. In some of the cases of meningococcic meningitis, small reddened macules are scattered over the trunk or extremities, sometimes described as "flea-bite" hemorrhage, and are an aid in diagnosis.

When we see a patient with some or all of the above symptoms, associated with stiffness of the neck, rigidity of the muscles along the vertebral column, or a positive Kernig or Brudzinski sign, we make a skin test for sensitization to horse serum and do a lumbar puncture. The sensitization test is started at this time in order that it may be read after the lumbar puncture is finished. If, on puncture, the spinal fluid appears turbid, milky or purulent, a sufficient amount of fluid is allowed to escape slowly to lessen the intracranial pressure, and anti-meningococcic serum is administered intraspinally without removing the lumbar puncture needle. This saves the patient another lumbar puncture if, after the fluid is examined in the laboratory, it is presumed or proved to be meningococcic in type, and probably doesn't harm him if it should be any other type of meningitis. As soon as the intraspinal injection is completed, serum is given intravenously if the skin sensitization test is negative. Serum is injected intraspinally in all cases presenting turbid, milky or purulent spinal fluid for the reason that there is no way of differentiating types of purulent meningitis on the gross appearance of the freshly removed fluid. A purulent meningitis with a polymorphonuclear cellular reaction in the spinal fluid and an absence of organisms is presumptive evidence of a meningococcic infection. Positive evidence is afforded only by finding the meningococcus on direct smear or cultured growth from the spinal fluid or blood stream.

If after laboratory examination the case is presumed or proved to be meningococcic meningitis it is our practice to administer serum intravenously and intraspinally at 12 hour intervals for three or four doses, after which the interval is lengthened to 18 or 24 hours. Rarely do we give more than three injections into the vein, and once intravenous serum has been stopped for three days we do not again attempt it without using desensitizing doses.

If, during the removal of spinal fluid, the patient complains suddenly of headache, or, if unconscious, he screams as if in pain, the flow is stopped for a few seconds and fluid again allowed to escape slowly until the headache recurs or until the pressure has been relieved. 20 cc to 50 cc is the usual amount of spinal fluid removed.

The average dose of serum which we gave intraspinally to a child was 15 to 20 cc and to an adult 20 to 30 cc, *given under gravity pressure only*. The intravenous dose we used was 15 cc for a child and 30 cc for an adult. In general, the quantity of serum injected at one time intraspinally is less than the amount of spinal fluid removed, and this practice should be observed for three reasons:

1. To relieve intracranial pressure.
2. To allow for freer circulation of the serum intraspinally.
3. To leave room for the increased production of spinal fluid which will follow as a result of the disease itself and the irritant properties of the horse serum.

At successive punctures, serum of different biological manufacturers is used since it is possible that one serum may contain antibodies for a particular strain of meningococcus which is absent in another serum. The administration of serum is continued until the spinal fluid is organism free and until the patient is clinically much improved, or until he has had a total of six or eight intraspinal injections, after which time we frequently do a lumbar drainage without administering further serum. Following the introduction of serum at the lumbar level, the foot of the bed is elevated sufficiently for two hours to keep the point of injection higher than the ventricles of the brain.

It occasionally happens, and especially after repeated punctures at the same lumbar level is it likely to occur, that no spinal fluid is obtained though it is evident that the puncture is properly done. This is usually due to blockage higher up in the canal caused by adhesions from the inflammatory process itself or to the trauma of repeated lumbar punctures. If a slight flow occurs at the lumbar level and then ceases, pressure on the jugular veins will cause definite increase in the rate of flow

if no blockage exists. Should pressure on the juglar veins not affect the flow, it indicates that there is an obstruction and justifies going in at a higher level. (Fig-



Figure I

ure I. shows such an obstruction at the first lumbar level. Lipiodol was introduced into the cisterna magna when lumbar puncture failed to yield fluid). When a blockage exists, a puncture at the next or second higher lumbar level will many times give fluid, but if this fails we resort to puncture of the cisterna magna entering below the base of the skull. The technique of the puncture of the cisterna magna, as described by Ayer¹ is as follows, Fig. II².

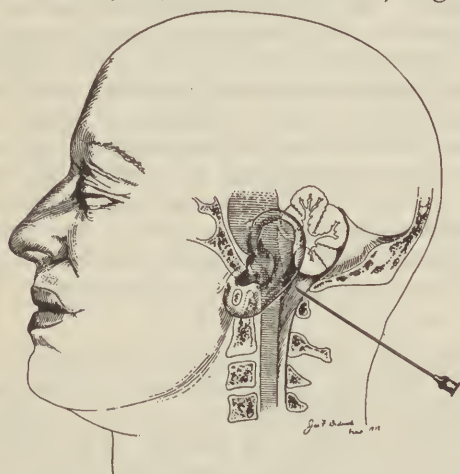


Figure II

"Place the patient on his side as for lumbar puncture, maintaining the alinement of the vertebral column and flex the neck moderately. The thumb of the left hand is placed on the spine of the axis and the needle inserted in midline just

above the thumb. The needle may be rapidly pushed through the skin but should then be cautiously and carefully forced upward and forward in line with the external auditory meatus and glabella until the dura is pierced. If the dura is entered at this angle there is usually a distance of 2.5 to 3.0 c.m. between the dura and the medulla. It is good practice to aim a little higher than the external auditory meatus and if the needle strikes the occiput to depress just enough to pass the dura at its uppermost attachment to the foramen magnum. At the needle's entrance the sudden 'give' is felt as in lumbar puncture."

Just as the cisterna puncture has been a decided help in the treatment of the acute stage of the disease, so also has lumbar and cisterna drainage been helpful during the convalescent stage. Patients not infrequently, during convalescence, develop within two or three days of the last injection of serum symptoms of increased intracranial pressure, as shown by headaches, vomiting, occasionally fever and irritability. Lumbar puncture in these patients at this time gives clear fluid under increased pressure and it is not uncommon during such drainage for the patient to be instantly relieved of his headache.

A relapse of this disease may occur in which the patient shows the same picture as the one just described for increased intracranial pressure during the convalescent stage, except that the temperature is higher, the vomiting and irritability more marked, the white blood cell count and spinal fluid cell count again increased and Kernig and Brudzinski more pronounced. Whenever a patient presumably convalescing has headache, nausea or vomiting, sudden elevation of temperature and stiffness of the neck, the symptoms are more often due to a relapse than merely to an increased quantity of fluid. Should the spinal fluid appear turbid on puncture under these conditions, antimeningococcic serum must be given intraspinally as before, but because of the danger of an anaphylactic reaction *not* intravenously except in desensitizing doses. Such relapses were observed seven times in our series. Each case again developed a turbid spinal fluid after it once had been clear and there was a reappearance of meningococci in the spinal fluid. Five of these patients eventually recovered after having one or two relapses each; one died with a complicating pneumonia, and one other went thru

four distinct relapses with recovery so far as symptoms and laboratory findings were concerned but later died at home, the cause being known. Although text books speak of a *relapsing type* of this disease, it seems a plausible explanation to say that somewhere along the cord or over the surface of the brain a small walled-off pocket harbors a few organisms and later, as a result of increased activity of the patient or further increase in the number of organisms, the pocket ruptures setting free meningococci into the spinal fluid.

In addition to the relapses which occasionally occur, there are at times certain more or less permanent residual injuries in individuals recovering from this disease. The most frequent of these in our cases was deafness. Deafness occurred twelve times bilaterally and once unilaterally. There were, in addition, four instances of ocular muscle paralysis; one optic atrophy with blindness and hydrocephalus in an infant; one hemiplegia; one atrophy of the deltoid muscle; one slight speech defect. So far as we have been able to follow up these cases, the injuries are still present and most likely permanent. In another infant hydrocephalus followed the acute stage of the illness but apparently recovered after three months following repeated spinal drainage.

Of the 142 patients recovering, 21 showed the residual injuries enumerated, a total of 15%. The evidence of complications and residuals in the earlier series is not known because of incomplete records.

Before comparing the results obtained in the two series, it may be well to review the methods of treatment used.

The 1916-18 series received serum intraspinaly only and at 24-hour intervals. With the exception of ventricular puncture in four patients, all of whom eventually died, the serum was administered by puncture at the lumbar level. If, as happened occasionally, lumbar puncture was unsuccessful, no serum was given.

The 1926-28 series is divided into groups "A" and "B" because of slight variation in treatment. Group "B" comprises 75 consecutive cases following immediately after group "A."

Group "A" received serum intraspinaly and intravenously at 12-hour intervals for 3 or 4 doses, after which serum intraspinaly at approximately 24-hour intervals.

Moreover, serum was injected into the cisterna magna when attempts to give it by the lumbar route were unsuccessful.

Group "B" was treated as was group "A" except that these patients received about 50% more serum intraspinaly in a proportionately greater number of injections. It was purely a coincidence that groups "A" and "B" received exactly the same amount of serum intravenously.

The average amount of serum given intraspinaly in the 1916-18 series was 111 cc and in the 1926-28 series 137 cc. The later series received, in addition, 52 cc of serum intravenously and in this series serum was administered 117 times into the cisterna magna when the lumbar route was blocked.

RESULTS OF TREATMENT

| | | | |
|----------------|-----------|-----------|-----------------|
| 1916-18 | 162 cases | 89 deaths | Mortality 55% |
| 1926-28—"A" | 126 cases | 38 deaths | Mortality 30% |
| "B" | 75 cases | 21 deaths | Mortality 28% |
| Total "A", "B" | 201 cases | 59 deaths | Mortality 29.3% |

As shown in Table 1, the 1916-18 series and group "A" of the 1926-28 series received approximately the same number of injections of serum intraspinaly and almost the same amount of serum by that route, although in group "A" some of the serum was administered into the cisterna magna. Group "A" received serum intravenously also. The mortality was reduced from 55% in the first instance to 30% in the second.

TABLE I

| | 1916-18 | 1926-28 A | B | Total 1926-28 A & B |
|---|---------|--------------|---------|---------------------------|
| Average Number of Lumbar Punctures in Patients Recovering | 5.6 | 5.5 | 8.8 | 6.7 |
| Total Number of Cisternal Punctures | 0. | 102. | 38. | 140. |
| Total Number of Ventricular Punctures | 17. | 4. | 0. | 4. |
| Average Amount of Serum Intravenously | 0. | 52. cc | 52. cc | 52. cc |
| Average Amount of Serum Intraspinaly | 111. cc | 116. cc | 173. cc | 137. cc |
| Number of Simple Drainages | 46. | 121. | 67. | 188. |
| Number of Cases | 162. | 126. | 75. | 201. |
| Mortality | 55% | 30% | 28% | 29.3% |

The greater total quantity of serum and the larger number of injections intraspinaly in group "B" (Table 1), other factors being the same, failed to lower the mortality appreciably below that of group "A" (Table III). This would suggest the use of larger quantities of serum intravenously as the next step in treatment, which is in keeping with Herrick's³ experience, where in he found the lowest mortality in those patients receiving considerably more serum intravenously than we have used.

TABLE II
RELATION OF MORTALITY AND AGE
OF PATIENT

| Age Group | 1916-18 | | | |
|---------------|---------|--------|-----------|------------|
| | Cases | Deaths | Mortality | |
| Under 1 yr. | 14 | 11 | 80% | |
| 1 to 3 yrs. | 12 | 5 | 42% | |
| 3 to 5 yrs. | 13 | 4 | 31% | |
| 5 to 10 yrs. | 22 | 3 | 14% | 1st Decade |
| 10 to 20 yrs. | 25 | 8 | 32% | 61 Cases |
| 20 to 30 yrs. | 30 | 20 | 66% | 23 Deaths |
| 30 to 40 yrs. | 22 | 18 | 80% | 38% |
| 40 to 50 yrs. | 12 | 9 | 75% | |
| Over 50 yrs. | 10 | 10 | 100% | |
| | 1926-28 | | | |
| | Cases | Deaths | Mortality | |
| Under 1 yr. | 9 | 1 | 11% | |
| 1 to 3 yrs. | 17 | 5 | 30% | |
| 3 to 5 yrs. | 14 | 2 | 14% | |
| 5 to 10 yrs. | 41 | 8 | 20% | 1st Decade |
| 10 to 20 yrs. | 59 | 13 | 22% | 80 Cases |
| 20 to 30 yrs. | 32 | 13 | 41% | 16 Deaths |
| 30 to 40 yrs. | 11 | 4 | 36% | 20% |
| 40 to 50 yrs. | 9 | 6 | 66% | |
| Over 50 yrs. | 9 | 6 | 66% | |

The relation of mortality to the age of the patient is shown in Table II and is self-explanatory. It may be well, however, to mention in our later series the mortality rate in early life was lower than that generally given. The average mortality for the first decade approaches closely that of the second decade, after which it mounts surprisingly.

TABLE III
GROSS MORTALITY TABLE

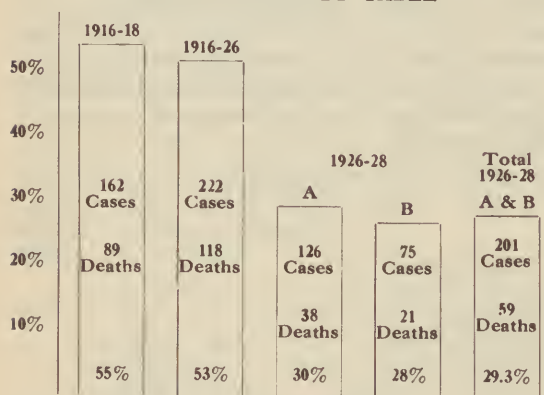


TABLE IV

CORRECTED MORTALITY TABLE

(Omitting patients who died within 48 hrs. of admission to the hospital)

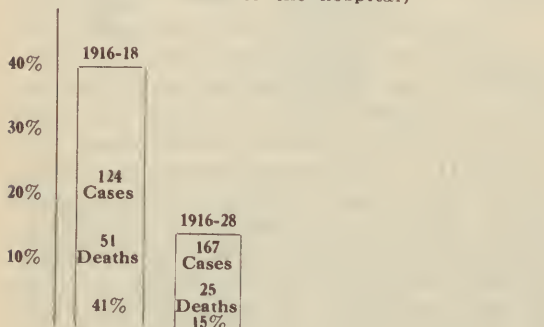


Table III shows a lowering of the general mortality rate in the two series of cases from 55% in the first to 29.3% in the second. A more striking reduction in mortality occurs, however, when we consider the patients surviving at the end of 48 hours after admission (Table IV). Of the 89 deaths in the first series, 38 occurred within the first 48 hours after hospitalization and 51 later. Of the 59 deaths in the second series, 34 died within 48 hours after admission to the hospital, and 25 died after that interval. Eliminating, then, deaths occurring within 48 hours of admission the mortality in the first series would be 41% and in the second only 15%. It seems evident that this reduction in mortality is due to the more intensive treatment which the recent series received within the first 48 hours after hospitalization; namely, serum intraspinally at 12-hour intervals instead of 24-hour intervals, and several injections of serum intravenously. It may be suggested that the lower mortality after 10 years might be due to a more potent serum. Undoubtedly there has been gradual improvement in the serum during this ten-year period, but the combined mortality rate from 1916 to 1926, inclusive, is in excess of 50% and it seems significant that the abrupt drop to 29% came in 1927 coincident with the more intensive treatment.

CONCLUSIONS

1. The mortality rate in meningococcic meningitis, at the Isolation Hospital, St. Louis, has been reduced from 55% to 29.3%.

2. The most striking reduction in mortality is in those patients surviving the first 48 hours after hospitalization, the rate being as low as 15% in the later series.

3. The lowering of mortality was coincident with the employment of a more intensive method of treatment, namely, shorter intervals between intraspinal injections, repeated intravenous injections of serum and the introduction of serum into the cisterna magna when the lumbar route was blocked.

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3. Herrick, Maj. W. W. The Epidemic of Meningitis at Camp Jackson (preliminary report). Jour. A. M. A. 70:227 Jan. 26, 1918. Herrick, Maj. W. W., Early Diagnosis and Intravenous Serum Treatment of Epidemic Cerebrospinal Meningitis.

SOME ASPECTS ON RURAL MEDICAL ECONOMIC SITUATIONS*

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In the preamble to the Constitution of the United States it promises that this Government establishes justice, equality and promotes the general welfare of its citizens.

We want to consider in this paper some phases of the economic rural problems, many of which have arisen in the last ten years.

First we want to consider it from a social stand point or the stand point of the patient.

Second we want to consider it from the stand point of a country physician.

The facts that make this paper pertinent at this time are certain conditions that have arisen recently. Due to the land getting older, its productiveness has diminished. Drought and hail in this section have caused many recent crop failures. Due to over crowded conditions and keen competition in farming large tracts, the price of real estate has increased. There has been a constant increase in taxation. During the last two years we have seen exceedingly low prices in all farm products, which makes it impossible for the farmers to make a living in many communities. The general depression of the whole country has been reflected very materially in farm life.

In contrast to the last ten years and from 1914 to 1918 these problems did not exist. The farmers then generally were prosperous. Their credit was good anywhere. If they could not pay this year, they could take care of their obligations in full next year. Now times have changed. The farmer can no longer borrow money for any purpose and this presents many economic problems for both the patient and the physician.

The classes of people in rural community may be roughly classified in the following manner:

Class One: The persons in rural towns which have a business that is self support-

ing and pays small dividends; and farmers that own their land, live on it, and have their places and personal property unencumbered.

Class Two: Persons who have purchased land recently and have it mortgaged for all it's worth; also all their personal property encumbered.

Class Three: Tenant farmers. Everything they have has been purchased on time payments and they have mortgaged all their personal property. Most of the land is farmed by the second and third classes.

Class Four: The common laborers and farm laborers whose incomes are so small that at the best they have just enough to feed and clothe their families, if that. No allowance is made for sickness or other misfortunes which may arise.

Class number one presents no problem whatever because they can get the medical aid they want, when they want it, because they can pay for it.

Class number two presents only a slight problem. With careful management they can pay for medical aid if given time to arrange for it and if circumstances are favorable.

The last two classes present a real problem in case of illness. They are at the mercy of one of three groups; the physician, if he will take care of them without pay (which he can not afford to do), or charitable institutions. There are few of these in the country and they function very poorly. The last responsibility is upon the county.

For the most part in the past the bills of these folks have been the great uncollected part that has been and is still on the books of the country physician and which never has and never will be collected, not even in part. Now let us see whose responsibility it is. The physicians are no more responsible for the care of the indigent sick than any other member of the community. They are not responsible for the conditions that bring about these circumstances. The groceryman is not responsible alone for furnishing bread and groceries to the folk in the community who do not have money to buy food. The dry-goods man is not responsible for clothing those in the community who do not have money to buy clothes. The school teacher is not responsible for all the illiteracy in a

*Read before the Garfield County Medical Society Oct. 23, 1930.

community. Thus we see that this class of the rural population, which consists of a very large group, is the problem of the community and society at large to be settled by certain social readjustments and by cooperation with the medical profession. The folk that constitutes this class are all native born American citizens with at least a common education. They are truly American citizens. They are the bread producers of this country. They work long hours and, for the most part, intelligently. They have few school privileges, no medical or health advantages whatever, and no training in hygiene. They are the class of Americans that, if given a chance and a little help, will produce the best type of citizens in this country.

Let us contrast this class with the indigent sick of the cities. The cities spend millions of dollars in a definitely organized Public Health with sufficient organization to put their program where it will reach the class of people it should. Here are many free dispensaries of every type where these patients can receive medical aid, not from questionable sources, but from the best the medical profession can provide. There are numerous charitable organizations in every city which help get these folk in touch with these free clinics and do a definite follow up work supervising the home surroundings to see that this does not hinder the progress of the medical care.

The type of patients that are taken care of in the clinic are 50% foreigners; negroes, Latin Americans and Southern Europeans who never have been or never will be good American citizens but who are here to make money and then leave this country. They are in no way as deserving as the indigent sick of the country.

Let us lay the responsibility to the county commissioners where it belongs. They take an oath to perform the duty of caring for the indigent sick. They have the means within their power to take care of the rural situation. They make out the budget of the county expenditures in which there is an estimate of the amount to be used for the indigent sick. This amount is invariably too small and usually runs out in the first thirty days. The physicians, hospitals, and other medicine workers are notified that no money will be available for the indigent sick until the next year. Yet they go ahead paying for roads, courthouse employees, and other

business of the county. They know how the country in general is situated financially. Here is where the failure lies. They are elected to build roads. They promise road building before they get into office, in many cases, and spend their time making roads. Their main theme in regard to health or indigent sick is that they will waste no money in this manner. They are absolutely untrained in any social or community problem and the people are not educated to demand better things in preventative or curative medicine for their sick.

Under the present social order it is incumbent upon the county commissioner to decide who is sick and who is not. He must decide who is deserving or not deserving. He has never studied medicine a day, he has not studied the problem of the indigent sick. In cases in which he is in doubt or does not wish to decide, he reminds the sick and the physician that he is a member of a committee of three and that he cannot decide this. Thus he dodges the issue. He hides behind the other two commissioners and says that nothing can be done and that the first Monday of the month he will take it up with the other two commissioners and see what action can be taken. Neither the patient, the community, or the physician can put off this illness until the commissioners have time to meet and consider the merits of the case. In most cases when he wants a road or bridge built he hires an engineer. When he wants a public building constructed he hires an architect, but when it comes to passing upon a medical problem he considers himself thoroughly competent to pass on these conditions and should he decide unfavorably, ask the neighbors to take care of the patients themselves or raise some money among the friends to pay for this service.

Dr. D. L. Bowden, director of rural sanitation in Oklahoma, says. "As to the relation between expenditures for Public Health and road improvement I can give only a rough estimate. It is estimated that there will be between \$80,000,000 and \$90,000,000 expended for road improvement during the next four years. While at the very outside \$1,200,000 would cover the entire expenditures for health work during the same length of time." In other words there will be approximately 85-90 times as much money spent for roads as for health programs.

We boast that we are a progressive, al-

truistic people and that we believe in the preservation of life over property but still we practice the opposite.

The average fee paid by the county commissioners for hospital care is \$15.00 a week on cases they approve. In the main no arrangement is made for the indigent sick outside of the hospital. That is at the expense of the country physician. These are taken care of usually in private hospitals at a loss. Dr. Langston, Supt. of University Hospital of Oklahoma City, says that the cost of a patient is about \$4.00 a day. Dr. J. H. Stephenson of the Dallas City County Hospital says the cost is about \$3.05 per day. Dr. P. E. Williams of the Kansas City General Hospital says the cost per day for the last year has been \$3.97 per patient. The private hospital must take this loss on these patients if it gives them the care they need. Again it is putting the burden of the indigent sick at the door of the practitioners and private hospitals.

Public Health says it has the answer to the situation. This may be answered both in the positive and the negative. At the present it has eight full time units in the state. It may touch one-tenth of the population but one-half of these are rural people. It does lead the way to free clinics and preventative medicine. It does not attempt curative medicine. It does not give the indigent sick in the country anything to meet his obligations to care for his curative medicine. It is a good work, necessary, deserving and should be in every rural community. It is much more economy to prevent such diseases as typhoid and diphtheria than to treat them. But this does not meet the need altogether of curative medicine.

The problem of curative medicine with the people in class three or four must be met in one of two ways; first, a full time County Physician on a salary to look after this class of patients; second, an agreement with the physicians already practicing in the county to be paid for the actual expense of the care of this type of patient. It depends on the community as to which plan is the better. It is unfair to a physician to spend his time with patients who never can pay. He loses much of the better class of work if he does this. The public and the commissioners must be educated to the fact that the indigent sick is a social problem and should be taken care of

through the regular channels of the county. This type of rural folk in class three and four are really deserving and will make American citizens if given a chance. Money invested in citizenship will surely bring in its returns as much as money invested in public improvements. We have the idea it is right to spend all the money the county has to fix a mud hole in front of a man's house, but none whatever to care for the man within the house who is sick and has no credit, no money, and no way of receiving or paying for medical aid.

Oliver Wendall Holmes said at one time: "The state of medicine is an index of any age of civilization, one of the best, perhaps, by which it can be judged."

In the next portion of this paper let us consider some of the reasons the country people cannot secure the best of medical attention from their physician.

Statistics show that there is a very small percent of recent school graduates after an internship that settle in the country. The trend is all the other way. The causes of the situation are many. In the old days there was not much expense to the practice in the country. Not much of what was collected was spent for overhead. That is no longer true. Today the country physician must have the same expensive equipment that one has in practicing in the city.

Another reason why rural communities find it hard to keep competent medical men, is the absence of good educational facilities for their children.

You say there are many high schools in the rural districts. True but when you have said high schools you have said all that you could say of them. So it is not correct to say he has high school opportunities for his children, let alone that of college or university. All he really has is common school education.

Probably the greatest blow to the country physician is the lack of hospital facilities. To advance properly in the practice of medicine he must have material with which to work. This necessitates a hospital. He then must own, operate, and control a hospital or refer his patient to some one who has one. The former has proved repeatedly to be a financial failure; the latter has many disadvantages. It is very inconvenient to make these long drives to the city. The doctor's practice

must suffer while he is away. He loses touch with his patients when they are in the city hospital. Many times then, the patient ceases to appreciate the work of the country physician. Due to these discouraging features the physician looks for a larger community in which he may serve.

What is the remedy? How can rural people alter these conditions? Some might say the way to correct this evil would be to lower the standards of the rural physician. Admittedly this is no solution to the problem. It would in no way better either, the profession or the medical situation in the country, it would rather retard both.

These are the words of Dr. C. C. Cracraft, Claysville, Pa., and published in the *Atlantic Medical Journal* Sept. 1923: "Some of the reasons the doctors will not stay in the country are these; the inadequate fees; the bad roads; the hard work; the lack of hospital accommodations, the insufficient educational institutions, but most of all, the lack of appreciation on the part of his patient." Dr. Cracraft goes further to say: "What is the remedy? The country districts have the remedy in their own hands. When they pay a doctor adequately and promptly, build good roads, provide sufficient hospitals, make high schools what they should be, have loyalty to their physician, then and only then will the rural districts be able to secure competent medical men. Let them do these things and the country physician will again appear and there will be no complaint of the dearth of rural physicians."

In conclusion let us consider the two plans suggested for taking care of the indigent sick. The first is that of a full time county physician; the second a plan by which the physician practicing in any part of a county might receive his actual expenses and reasonable pay for his time.

The first plan is a failure for these reasons: The very size of the county makes it impossible for one man to take care of acute cases all over his district. It is only in places where the county seat is 20,000 or more that they are able to afford a full time physician. In a community of this size the physician would spend all of his time in the county seat town or within a radius of less than four miles. It is the rural population that suffers.

The inconvenience of the other plan is this. One physician has said it is easier to bring suit against an individual than to

get a commissioner to discuss the question of a sick man. This is why the individual and the physician have been indifferent and as a result the doctors treated the patient and took the loss of his time and money.

When a full time physician is employed he seldom does the surgery necessary. The private practitioner must do this without remuneration. So here again the responsibility comes back to the surgeon in private practice. Therefore we would suggest that if the full time county physician plan is used, that that office be based on merit and ability and not on politics.

There is an adage almost as old as medicine itself. "It is a part of the economics of medicine that the rich must pay for the medical attention of the poor." This theory is extremely popular with the poor but very unpopular with the rich. In the past the physician has made this adjustment. Present day medicine suggests that society should make the adjustment. That the rich may pay for the care of the poor is a social problem and not the problem of the physician.

The author believes that this is the solution. The county health office should be given the authority to pass on the physical condition of the patient, and an assistant be furnished to give the social and financial rating. This is how it would work. A physician sees a patient who never will be able to pay. He notifies the health office. This office immediately investigates and reports the case to the commissioners, with an opinion concerning the physical and financial condition with these reports and that of the resident physician, they would have sufficient facts upon which to decide the merits of the case. This is the plan by which the indigent sick of the rural communities can receive proper medical attention and the physician be treated justly and with equality to all.

SURGICAL TREATMENT OF PULMONARY TUBERCULOSIS

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Aim: The aim is to put diseased lung at absolute rest and to close cavities.

Insofar as quiescence of the diseased

lung is concerned, the surgical procedure does exactly the same thing as sanatorium rest and other time honored means of resting. The surgical means of producing this rest, however is far more efficient than mere rest in bed. The result of surgical procedures is to produce an actual cessation of function in the diseased lung itself.

In a patient who is resting in bed, even though he remains in bed twenty-four hours out of every day, both lungs are always working. One might properly speak of the function of the lungs of such a bed patient as carrying on the basal respiration. In those patients who are suitable for surgical procedures, even the basal respiration is eliminated from the diseased lung. The maximum opportunity for healing, therefore, is given to the diseased lung since the lung is rendered quiescent and is not required to perform work.

Aside from and in addition to this rest, surgical procedures are our most effective means of closing cavities in the lungs. The closure of such cavities is usually necessary for healing. Any patient who has a large cavity in the apex, let us say, can never be considered to be cured as long as this cavity remains open. They may become sputum free or the sputum may be negative for tuberculosis bacilli, but the sword of Damocles hangs over such a patient until his cavity is closed. We have seen, repeatedly, such patients released from sanatoria who were considered as arrested or cured cases because of their being free from temperature, tubercle bacilli, or their general well being. Unfortunately more than 80% of these cases return to the sanatorium within the four years following their discharge. They are, therefore, not only almost certain invalids themselves but they are also a menace to the health of all those with whom they associate.

PROCEDURES

The most firmly established and the most extensively used surgical procedure for the treatment of pulmonary tuberculosis is by closed pneumothorax—moreover this is the least radical procedure. The use of the closed artificial pneumothorax, when properly administered, is well tolerated by the patient. It is flexible in that more can be added as needed or if too much air has been introduced a portion may be withdrawn. At the Barnes Hospital and at Koch Hospital collapse of the

lung is always attempted by the use of closed pneumothorax in preference to any other surgical procedure. It is by far the method of choice.

Unfortunately, there are many cases who are suitable for collapse therapy and in whom the use of artificial pneumothorax is impossible because of adhesions between the pleura of the lung and the costal pleura. In such cases a more radical surgical procedure must be employed to bring about a collapse.

Our purpose is to dwell mainly on those surgical measures other than pneumothorax. These are phrenic nerve resection, thoracoplasty and division of the motor nerves to the intercostal muscles.

PHRENICOTOMY

Indications: In the operation of phrenicotomy the nerve supply to half of the diaphragm is destroyed. This produces a paralysis of the diaphragm, and there is a lessening in the respiratory excursions on that side. Welles has shown that respiration is carried on to a considerable degree by means of the diaphragm alone. This is true not only of that portion of the lung which is in the immediate proximity of the diaphragm, namely the bases of the lungs, but respiration even in the apices of the lungs is largely the result of movement of the diaphragm. The widest excursion of the walls of the chest, the diaphragm and rib framework, is low down in the chest. As one approaches the apex of the lungs, the excursion of the ribs in going from full inspiration to full expiration is much less. In an individual whose ribs are tightly fixed, either by bony ankylosis or by resection of the intercostal nerves, respiration is still carried on throughout the entire lung, apex included, through the movements of the diaphragm alone. Paralysis of the diaphragm, therefore, is a logical procedure for the production of rest in the lung.

The details of the operative procedure are worthy of note. This for comparison of magnitude between the procedure of thoracoplasty. The operation for phrenicotomy is described briefly as follows: An incision is made in the neck parallel to and one-half inch above the clavicle at the posterior border of the sternocleidomastoid muscle. The anterior scalenus muscle is exposed and the phrenic nerve picked up as it courses along the anterior surface of the scalenus. It is divided and the dis-

tal end is slowly pulled out of the chest. Often the entire nerve is removed—even the branches which spread out over the diaphragm. This paralyzes the diaphragm.

The operation for phrenicotomy is properly classed as a minor operation. This does not imply that the procedure is without danger. There is an appreciable element of danger to the patient, especially when the entire length of the nerve is drawn out of the chest. Hemorrhage from some deep inaccessible vessel is the most frequently met with calamity. The pleura has been torn—a portion of the costal pleura of the apex of the chest has been removed—and on the left side the thoracic duct has been torn.

In our series of cases of phrenicotomy amounting to a little more than 100, we have had only three unpleasant experiences of this type. None of these have proven fatal—or even serious. In the first instance a girl with an acute tuberculous pneumonia (galloping consumption) a phrenicotomy was being done in the usual manner when suddenly the wound became filled with a gush of dark venous blood which welled up from the mediastinum below the level of the clavicle. About 4 cm. of the nerve had been drawn out slowly from the chest before this bleeding started. This segment of nerve was immediately resected and the operation terminated by closure of the wound after waiting for the hemorrhage to cease.

The second and third instances of similar alarming complications at the time of phrenicotomy occurred in two successive cases and on the same day.

Incidentally, I want to mention the result of our phrenicotomy in the girl with an acute tuberculosis pneumonia (or galloping consumption). She had developed this acute flare up following a long period of partial arrest. For the three weeks preceding the phrenicotomy she had been going down hill fast. She ran a temperature never below 101 and this rose daily to 104. She was sick. The sputum was loaded with tubercle bacilli. In desperation a phrenicotomy was suggested. I did not feel like urging the procedure since I did not expect a great deal of benefit. To my surprise her temperature began to fall. It did not reach a high level on the day of operation and on the third postoperative day the maximum temperature was 99.2 instead

of 104 as it had been for nineteen days before the operation.

The benefit was dramatical in type. The temperature fell almost as a crisis in an ordinary pneumococcus pneumonia. The patient is still in the hospital but is making a splendid progress toward recovery. May I be permitted to add that this definitely was not an ordinary pneumonia but was an acute tuberculous affair involving the apex of one lung and this was proven by the typical mottled appearance of the X-ray, the presence of myriads of tubercle bacilli in the sputum.

Dr. Graham has had a similar case with similar dramatic results—so far as I know these two cases are the only ones in whom a phrenicotomy has been done in the face of a violent acute tuberculous process in a lung. They illustrate, in a spectacular manner, the effect of rest in a tuberculous lung.

There are three important considerations for resection of the phrenic nerve or induced paralysis of the half of the diaphragm. (1) The effect is distributed throughout the lung even to the apex. (2) The operation is a minor one and can be tolerated by weak and debilitated patients. (3) The effect is permanent.

There is one definite and consequential difference between artificial pneumothorax and the more radical operative procedures such as phrenicotomy and thoracoplasty. In the latter the compression and loss of function in the diseased lung is permanent. In artificial pneumothorax the effect is temporary.

The question naturally arises, should phrenicotomy and thoracoplasty be used since there is no undoing of their effects. This question is answered by the small percentage of "good" lungs after artificial pneumothorax. These lungs which are riddled with tuberculosis seldom return to the state of serviceable lungs. The patient is usually much better off without them.

THORACOPLASTY

In those cases of unilateral tuberculosis of the lung in which an artificial pneumothorax cannot be made a complete collapse of the chest wall may be indicated. This is done by removal of segments of the first to eleventh ribs inclusive on the affected side. Long segments of each rib are removed. The operation must be done in three or more stages. Beginning at the

level of the transverse process of the spine, the rib is removed subperiosteally for a length extending to the posterior axillary line. This allows the bony framework to sag downward and to move inward toward the mediastinum. The diseased lung is put at complete rest. The improvement in the general condition of the patient is often startling.

INDICATIONS FOR THORACOPLASTY

No brief set of rules can be formulated to make the selection of these cases an easy matter. In general, however, the things for consideration are the resistance which the patient exhibits toward the disease, the distribution of the lesions, the age of the patient, the duration of known symptoms, and the effectiveness of previous treatment.

The best results are obtained in patients who show resistance to the disease. An objective sign of resistance is the formation of fibrous tissue around the lesions as determined by the X-ray. Often this is sufficient to pull the trachea away from midline. Deviation of the trachea, therefore is a sign favorable for thoracoplasty. It indicates that the operation may prove to be worthwhile.

Another indication of resistance is the narrowing of the intercostal spaces at the site of the lesion. This is nature's own way of accomplishing a thoracoplasty. If the lesion is small, the patient may recover, of course. If the lesion is extensive this attempt at autothoracoplasty should be augmented by removal of the proper segments of ribs in order to permit the collapse of the diseased lung.

I hold that deviation of the trachea due to fibrous tissue about a tuberculous lesion and narrowing of the intercostal spaces which produces a partial collapse of the chest are the patient's prayers for surgical assistance.

THE MOST SUITABLE CASE

Each case requires extensive and careful study both by the internist and by the surgeon. No operation for thoracoplasty should be undertaken upon a "hunch." Careful consideration of the case should be made by repeated examinations, fluoroscopic and X-ray studies, blood counts, etc. These studies should be carried out by the internist and surgeon working together, both seeing the patient at the same time.

This detail is important. We have found that little is accomplished in this respect unless the internist and the surgeon actually meet at the bedside of the patient or in the examining room to exchange and develop their views of the case. In no other type of surgery is such close teamwork so essential.

CONCLUSIONS

1. Surgical collapse of the chest wall may be of great value in the treatment of unilateral pulmonary tuberculosis.

2. Phrenicotomy and thoracoplasty puts the diseased lung at complete and permanent rest.

3. Cases with persistent cavities, or with a unilateral pulmonary tuberculosis which does not respond to the ordinary means of treatment should be considered for surgical collapse.

4. Signs of resistance of the patient should be sought for. They are the presence of much fibrous tissue in the lung as revealed by X-ray, deviation of the trachea, shingling of the ribs, narrowing of the chest wall, the general progress of the disease and a high lymphocyte percentage along with a low stab cell count in the differential.

5. The surgeon and the internist must study each case together before operation.

REPORT OF EXPERIMENTS AS TO THE EFFECT OF SOME DRUGS ON THE BLOOD PICTURE

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Investigations carried out as a result of the recently awakened interest in hemology and hemocytology have revealed the fact that there are many factors, besides definite pathology either in the circulatory system or elsewhere in the body, which result in changes in the blood picture. Since these effects have been found in healthy individuals without symptoms the question arises what part do these factors play in the altered blood pictures we see in persons suffering from conditions in which the blood picture is of diagnostic

importance. If there are factors that thus affect the blood picture then cognizance of them must be taken into account and due allowance made for them in making and interpreting hemological examinations.

There is one phase of this question on which little or nothing has been done in this country and the work done in other countries has been from a toxicological standpoint rather than the conditions likely to be met in the practice of medicine. That is the effect of drugs in therapeutic doses on the blood picture.

In beginning this work our attention was first called to quinine because of a high and unexplainable eosinophilia found in an incidental blood count on an individual who had been taking quinine as a tonic. The blood picture revealed a white count of twelve thousand five hundred with six per cent eosinophilia. Repeated examinations showed a high white blood cell count, low poly, high leucocyte count, and the high eosinophilia. Counts made on several other patients taking similar treatment showed like conditions. It was found that the tonic in these cases contained other substances than quinine; further we had no check on the blood picture before treatment was instituted. So it was decided it would be worth while to take the various ingredients in the tonic separately and study their effect on the blood picture. A further interest in selecting quinine was the frequency of its use as a prophylactic, tonic, and remedial agent.

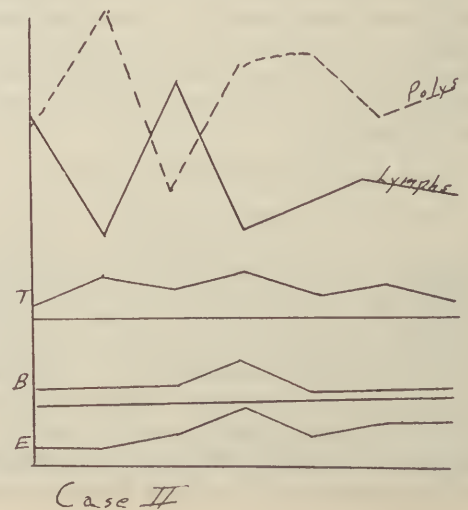
Heffter in Vol. II of his *Handbuch der Experimentalen Pharmacologie* has made a careful survey of all work done on the effects of quinine on the blood and blood cell behavior from the original work of Binz in 1868 to 1919. Heffter's summary is as follows: Gremani observed a reduction of erythrocytes after administration of fifteen grain doses of quinine. Krunkel reports a special sensitivity of erythrocytes to quinine at the onset of Blackwater fever. Irisawa found that a moderate but definite leucopenia went parallel with the assimilation of quinine. Roth states that the leucopenia is preceded by a brief leucocytosis which he interpreted as due to the contraction of the spleen. He further says that the leucocytosis was first an increase in lymphocytes followed by an increase in polys. Muriel observed a fall in white cells from ten thousand two hundred thirty to six thousand five hundred

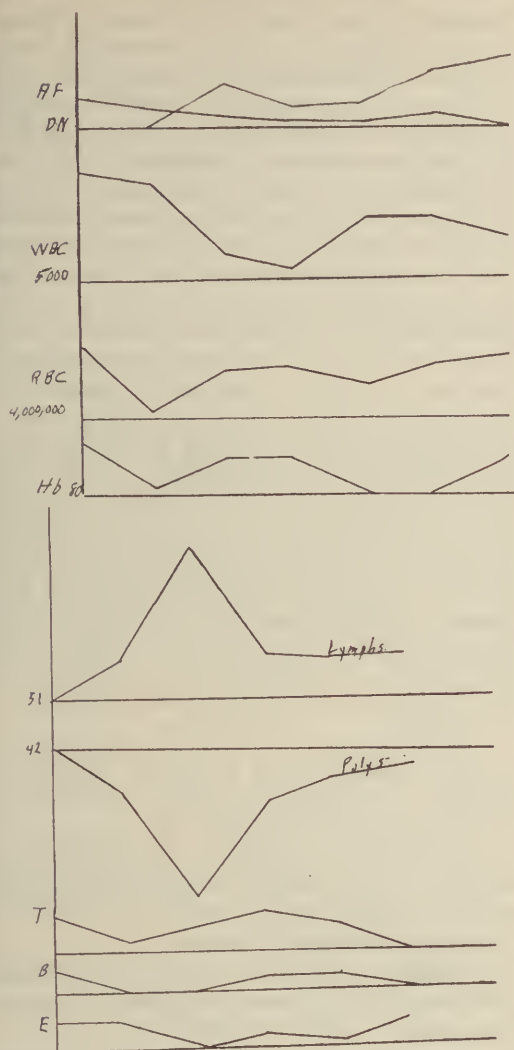
forty and from five thousand two hundred seventy to one thousand eight hundred seventy in rabbits subjected to doses of four to six grains of quinine per kilogram of body weight. Trautlein reports changes in morphology of polys under doses of fifteen grains of quinine in normal individuals but not in patients suffering from malaria. Torgau denies that there are any morphological alterations.

These reports are the basis of all discussions of the effect of quinine on the blood picture. But if you will notice these experiments were on massive single doses, from fifteen grains, to six grains per kilogram of body weight or forty two grains for an average man. Since conditions like these are not apt to be met under ordinary circumstances we decided to approximate the condition such as one might meet in general practice, such as a patient using quinine as a tonic or prophylactic.

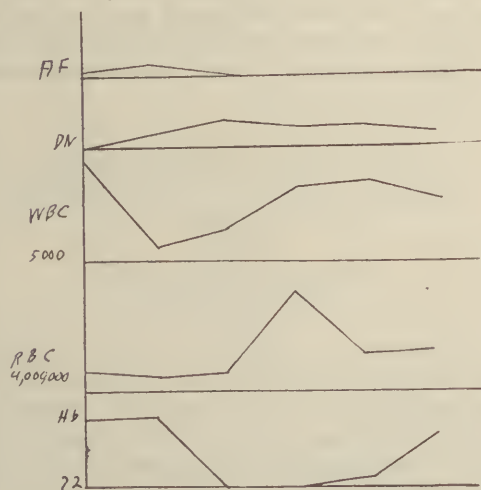
We selected individuals free, as far as could be determined, from infections or any demonstrable abnormal blood conditions, in other words healthy adults. None of our subjects had ever had malaria or other diseases likely to leave any effect on the blood or hemopoietic system.

We ran daily complete red and white counts and hemoglobin determinations for several days to establish a normal for each individual. In order to avoid the effects of sleep and alimentary factors the tests were made at three-thirty each afternoon. When the normal was established the subjects took one grain of quinine per day after each examination. The experiments ran over a period of eighteen days. The effects of this dosage is shown by the following graphs.





Case I



From these experiments it appears that quinine in small doses over considerable time does cause variations of the blood

picture. At first there is a rather marked disturbance of the red blood cells, polys, and lymphocytes; also the hemoglobin. The first effect is a fall in the number of both red and white cells. This reduction began in about twenty-four to thirty-six hours and attained a maximum in about seven or eight days when there was a gradual return toward a normal. In case I. the hemoglobin did not follow the change in the number of red cells, but in case II. there was a close parallel.

The effect on the white cells was more marked. There was a decided fall in the total count, and a disturbance of the relative percentages. The leucopenia attained its greatest degree in about thirty-six hours then rose toward the normal, but at the close of the eighteen day period had turned down. The variation in the proportion, while marked in both cases, was more individual in particulars. In case I the lymphocytes increased while the polys decreased proportionately. In case II the opposite was the case. But in both cases the percentages again approached normal.

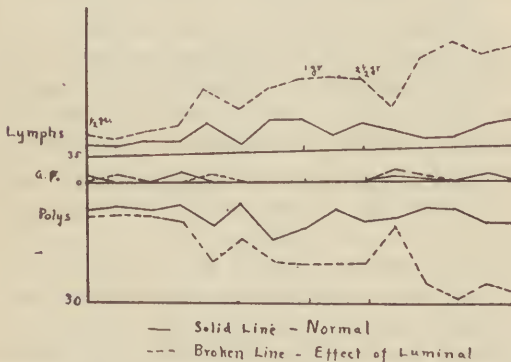
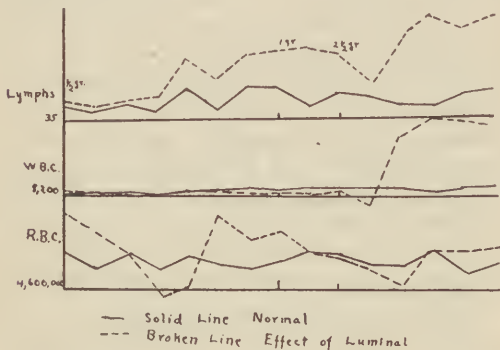
The eosinophiles, basophiles, and transitional cells seemed to be little affected.

The aberrant, forms such as myelocytes, mast cells, rider cells and others, gradually disappeared. However the so-called degenerated nuclei, of some hemocytologists, gradually increased in both cases.

While the work on quinine was being done by the Department of Pathology a similar set of experiments was carried on by the Department of Pharmacology. Luminal was selected for these experiments because of its wide use as a sedative. So far as could be ascertained no work has ever been done on the effect of luminal on the blood picture. For this reason dogs were used as subjects as a preliminary experiment. However the experiments were designed to be as nearly similar to practical conditions as possible, using animals. Sodium luminal was used because of its greater solubility.

Healthy dogs of nearly equal size and general characteristics were selected. They were kept under the identical conditions for four weeks, a blood examination being made each week to establish a normal for each animal. At the end of this period, one dog was kept as a control and the other dogs were given luminal by mouth. The dosage was proportional per body

weight to that for adult humans. First the subjects were given the equivalent of one-half grain of luminal each day for a period of seven weeks. Their blood was examined each week. The dosage was then increased to the equivalent of one grain each day for two weeks and a weekly examination given. The dosage was then increased to the equivalent of two and one-half grains daily for five weeks with weekly blood examinations. The results of these experiments are shown on the following graphs which are a combination of all animals used, except the one dog kept for control, whose records are shown for comparison.



The red cell count began to fall from the beginning of the administration. This decrease continued to the end of the third week when it reached the lowest point. From this point the count rose abruptly to normal then rather steadily but slowly declined falling faster under increased dosage to reach a new low level at the end of the second week of the maximum dosage. From this point the count again rose some and was slowly going up at the close of the experiment.

The white count seemed to be unaffected until the maximum dosage was given. For the first week there was a sharp decline, then a sudden rise to over twice the normal count, in one dog rising from eight

thousand nine hundred to twenty thousand six hundred. The differential count is even more interesting. The percentage of polys, which declined from the beginning, after a rally for the first week of the maximum dosage declined rapidly and was still going down at the close of the experiment. The lymphocyte count increased from the beginning slowly for three weeks then a sudden elevation to a new high level until the administration of the maximum dosage. At this point there was first sharp decline for a week, then a sudden elevation to a new high level higher than any previous point. It will be noticed that the lymphocyte increase is all the more remarkable and is responsible for the high white count at the same time the poly count was going down. At the end of the experiments the dogs were killed and carefully examined for possible infectious processes which might have accounted for the leucocytosis in the last few weeks. None was found, therefore the alteration in the blood picture must have been due to the luminal.

These experiments indicate that the ingestion of drugs does have an effect on the blood picture.

The possible ingestion of drugs should be taken into account in interpreting blood pictures, and may in some cases explain vagaries in blood pictures.

Luminal especially tends to stimulate lymphocytic increase, but seems to have the opposite effect on polys.

Quinine in small doses over an extended period tends to reduce the number of white blood cells affecting both polys and lymphs. What would be the effect of larger doses remains to be found out by subsequent experiments.

THE RATIONAL TREATMENT OF CARCINOMA OF THE CERVIX UTERI*

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Numerous remedies have been suggested for the cure of cancer. The only two methods of treatment that have given favorable results, on careful investigation, have been surgery and radiotherapy, both local therapeutic measures and both of relative youth.

*From the LeRoy Long Clinic, Medical Arts Building, Oklahoma City.

In the treatment of cancer of the uterine cervix there is still some uncertainty in the minds of many physicians as to the relative merits of surgery and radium. This is not difficult to understand when we realize that in this country as well as abroad there have been two schools of opinion. One was the surgical treatment group, largely composed of surgeons without an adequate knowledge of radiotherapy; and the other was the radiotherapy group, largely composed of roentgenologists without an adequate knowledge of the surgical aspect.

The rational value of either method or combination of methods will depend upon what effect it has upon the anatomy and pathology of the local growth as well as upon the body organism. The merits of each must be judged by the end results and by the amount of comfort afforded the patients. The success of either will depend upon early diagnosis of the disease.

The uterus lends itself poorly to the radical surgery recognized as necessary in dealing with cancer. For example, in operating on a cancer of the breast the removal of the anatomically related glands is considered an indispensable part of the operation. In the ordinary complete hysterectomy the uterus, and a small portion of the vagina and parametrium are removed, but because of the intimate relation with the ureters, urinary bladder and rectum, radical removal, together with lymphatics and related lymph nodes, is not possible without doing an extensive operation with mobilization of the ureters and removal of the glands about the promontory of the sacrum, such as devised and employed by the Wertheim School. It cannot be compared with the ease and safety with which a radical mastectomy can be done. In good clinics where the Wertheim operation is employed wherever possible and in large numbers the immediate operative mortality is not claimed by any to be lower than 10%, and it is universally admitted that in the first hundred operations performed by an individual this figure is raised to lie between 15 and 20 per cent. We must also mention the discomfort of many survivals because the incidence of urinary fistulae runs between 8 and 10 per cent, and an occasional fecal fistulae is admitted by the advocates of this operation.

The spread of carcinoma of the cervix

is by the lymphatic system and by direct extension.

Oscar Frankl of Vienna demonstrates extremely well the lymphatic drainage from the cervix. He quotes Shroeder, who made several thousand microscopic sections to prove the location of a small lymphatic node just lateral to the cervix at the level of the entrance of the uterine artery. This he aptly terms the first station of defense. The paravaginal and paracervical tissue is filled with lymphatics which drain these areas. The eventual drainage is to the hypogastric and iliac glands in the region of the sacral promontory, the intermesenteric glands and coeliac glands. One who has seen any considerable amount of autopsy material will realize that any one of the node groups may be involved in metastatic carcinoma of the cervix. What I particularly wish to point out is the fact that most carcinomata of the cervix invade this first station gland and the lymphatics of the paracervical tissue, and proper treatment must not only include local removal or therapy to the cervix itself, but to the vaginal vaults and a consideration of the glands about the promontory of the sacrum.

The direct extension growth of carcinoma of the cervix naturally invades the surrounding tissues which include the adjacent vaginal wall, broad ligament, the rectum and bladder. Strangely there are few instances of invasion of the uterine cavity. Obviously, proper treatment must include the removal or radiation of all invaded tissues.

It is clear from the cursory view of the anatomy of the pelvis and the method of spread that surgery is inadequate in complete removal of carcinomata of the cervix invading the bladder or rectal wall. It was natural, therefore, before the first use of radium, only eighteen years ago, that the clinical classification of carcinomata of the cervix was limited to those that were operable and those that were inoperable. Even with the rapid strides made in the use of radium, this is still the basis for the classification in Europe and in many parts of America, and produces great confusion in the attempted statistical comparison of the end results of surgery and radiotherapy. There are certain to be differences of opinion as to the operability or inoperability in different clinics and among different men of the same clinic. The only com-

monly accepted criterion for inoperability is invasion of the surrounding tissue to such an extent that surgical removal of the entire carcinomatous process cannot be accomplished. In clinics in which operation is done where possible an average of 50% of the cases seen fall in this group. Victor Bonney of London reports an operability rate of 63%. Surgery in this inoperable group is clearly contraindicated, and all accept radiotherapy as the rational procedure. The object is naturally to so place radium and fire X-rays as to destroy all deposits. But even where only palliative doses are used the reduction in bleeding, the disappearance of the foul discharge and the general mental outlook of the patient are very valuable.

Since the advent of radium it is in the so called operable group that much discussion has arisen concerning the choice between radium and surgery. It had already been firmly established that surgery was rational and effective only when employed in a radical way and the regional glands removed.

It is likewise quite clear now that radiotherapy is only effective when sufficient radium in proper location and with proper screening is combined with deep X-ray therapy to cause the death of all the cancer cells in the original growth, its extension and lymphatic metastases.

With this in mind we may consider the additional classification of the so-called operable group which has been used for the comparison of the various methods. Early or group I includes those cases in which the growth is clinically limited to the cervix. Borderline or group II. includes those where there is invasion beyond the cervix. We must also consider those cases in the operable group where there is regional gland involvement and those in which there is no involvement.

It is relatively easy to make the first classification of a given number of patients, i. e., those cases in which the carcinoma is clinically limited to the cervix and those in which it extends beyond it into the vaginal fornices and the parametrial tissue close to the cervix.

Looking at the question of a choice between surgery and radium, it would seem that the group I cases offered the logical condition in which surgery could be best used. Statistics show that this is partially true, but we find that there is no stand-

ardization of method of classification and the figures are confusing. For example, Bonney operated on 265 cases or 63% of cases seen by him with a relative cure rate of 39.6%. Heyman in Stockholm radiated 186 cases of what he classified as operable class 1 and 2 cases, or 39% of cases seen by him with a relative cure rate of 40.8%. We see that the individual factor of judging a single case and a consideration of the kind of patients applying for treatment makes for great confusion. Healy at the Memorial Hospital in New York states that his early cases average not over 10 or 12% (12 per cent from 1918 to 1925), and that from experience before the use of radium he judges 35% of these to have regional gland involvement. But it is impossible to accurately compare results of surgery with radiotherapy because it cannot be ascertained without pathological material whether there are metastatic deposits in the pelvis or not.

Considering the treatment of these early cases from the standpoint of the effectiveness of radiation, it would seem clear that it would be here if anywhere that our results would be most encouraging. Even were it more logical to employ surgery alone in the treatment of this early group, there are two important reasons why it should not be chosen in preference to radiotherapy. Firstly, it is not possible before operation to determine that there is no involvement of the regional lymph nodes. Secondly, the surgeon who did the radical surgery necessary only in this group of carcinoma of the cervix, would not be able to reduce his immediate operative mortality below 15 to 20 per cent.

To study the question of regional gland involvement alone is even more difficult because before operation determination of involvement is influenced by the physical situation of the glands which makes accurate palpation impossible in the operable group, we are forced to study the surgical pathology material such as is furnished by the report last year of Victor Bonney of London. Statistics are wanting in this country because of the relatively few operations done for carcinoma of the cervix. Bonney has done a classical Wertheim operation with removal of all regional glands on 63% of the carcinomata of the cervix he has seen. He found 40% of these to have regional gland involvement. Bonney points out that if one would

roughly consider that the same rate for gland involvement existed in all cases in all clinics, the latest figures from Stockholm would show by comparison that radium offers a higher cure rate than does surgery in gland uninvolved cases and a less high one in the cases in which the glands are involved.

Though this can be deduced from the statistics between radium and surgical clinics, it is only on a hypothetical basis due to the fact that it is impossible without a pathological specimen to ascertain which cases have regional gland involvement. The surgical group has maintained from the outset that radiotherapy did not reach regional glands, and therein lay the greatest advantage of surgery. For example, Bonney in his most recent report on this subject contends that his relative five year cure rate for no gland involvement is 30.9% of 252 cases treated with radical surgery, and 37.8% of 280 cases treated with radium at Stockholm. With gland involvement Bonney assumes 16% five year cures out of 169 cases, but has allotted all of Heyman's cures to the uninvolved gland group and allows no cures from the gland involved group. He concludes that, "If there were no such thing as gland involvement radium would give better results than surgery."

The case with no involvement is the very type in which surgery would seem rational because we appreciate the extreme difficulty of proper surgical treatment of the drainage lymphatic system of the uterus. If the advocates of radical surgery will thus concede that radiotherapy gives better end results in cases in which there is no gland involvement—and we have shown that this is the logical instance in which surgery is rational—it is obvious we have a decided argument in favor of radiotherapy in early group 1 cases without gland involvement, as well as in all others. The borderline cases are more apt to have gland involvement and their extension and metastases, together with the complicity of the pelvic anatomy, makes surgery from a rational point of view bow to radiotherapy.

Early in this paper we adopted the premise that the merits of either method of therapy, or a combination of them, depended upon the end results, together with the comfort of the patient. The only proper comparison of end results is the actual

percentage of patients seen who are still alive a definite length of time after the first visit. Bonney gives his as 25%, and Heyman of Stockholm as 22.7%. However, it cannot be forgotten that each of these men is removing or radiating not only the local growth, but the regional lymphatic system in a radical manner. These figures differ by only 2.3% in favor of surgery. I believe the higher proportion of advanced carcinoma seen in a clinic known for radiotherapy will more than account for this difference.

In addition, surgery has little more to offer and radiotherapy is yet in its infancy, and we have a right to expect improved results from its use.

Another point of consideration is the fact that a large share of the deaths under surgical management are from immediate operative mortality. I have heard it said that by comparison it was immaterial whether the patient died from operation, primary growth, or secondary recurrences. I do not believe many men will agree that the prolonged life and minimum of pain is to be so lightly set aside.

For the reasons stated, I am convinced in my own mind that radiotherapy is the best method we have today for treating all types and groups of carcinoma of the cervix. What the future holds with such possibilities as surgical removal of the glands about the promontory of the sacrum, radiation of the cervix and vaginal vaults, and deep X-ray therapy of the pelvis afterward, no one is prepared to say. It is clear that to obtain the best end results radiation in large, properly screened, properly placed dosages of the primary growth and the entire regional lymphatic system is not only desirable but imperative.

In this paper we have only been concerned with proper methods of treatment. We have assumed that careful scientific procedures must be employed in either of two large, grossly different therapeutic fields. Thus, while the technique of radiotherapy has not been entered, it is essential that a careful study of the pathology, anatomy and physiology of each patient be made, and the details of the technique minutely considered and rigidly applied. Inadequate, improper or careless use of radium, especially in untrained hands, will of necessity give poor results and discour-

age those who have been influenced to have it used on their patients and friends.

CONCLUSIONS

1. A combination of radium and X-ray therapy seems to be the most efficient form of treatment at present and we have a right to expect even better results from its use.

2. When radiotherapy is used, not only the local primary growth but the entire regional lymphatic drainage system must be treated with radiation of the vaginal vaults and X-ray of the glands about the promontory of the sacrum.

3. This must be in sufficient dosage and properly screened and properly placed to afford enough radiation in each part of the area considered to destroy all the offending growth.

4. In advanced cases only radium and X-ray therapy are to be considered.

5. If surgery is used it is imperative that it be radical as in the surgical treatment of other cancers.

6. Early carcinomata of the cervix are rationally treated with radical surgery, but if radiation is ever effective it should be in this type of case. End results have not proved radiation inferior.

7. Unfortunately only a minor percentage of the cases seen will survive because of the difficulties incident to an early diagnosis.

8. It is possible that in the future we may use radium in the vagina and cervix, remove the glands by operation and X-ray the pelvis afterward.

9. The prolongation of life and comfort of the patient is not irrelevant but vital in deciding which is the superior method of therapy.

THE MODIFICATION OF POWDERED MILKS GOVERNED BY THE SAME RULES AS COW'S MILK

When physicians are confronted with undependable fresh milk supplies in feeding infants, it is well to consider the use of reliable powdered whole milks such as Mead's or the well-known Klim brand. Such milk is safe, of standard composition, and is easily reliquefied.

Under these conditions, Dextri-Maltose in the physician's carbohydrate of choice just as it is when fresh cow's milk is employed.

The best method to follow is first to restore the powdered milk in the proportion of one ounce of milk to seven ounces of water, and then to proceed building up the formula as usual.

RECURRENT MENINGITIS WITHIN A PERIOD OF EIGHT YEARS

I. P. Bronstein, Chicago (Journal A. M. A., June 22, 1929), reports an unusual case of recurrent meningitis. The original attack was associated with a nasal operation. The recurrent attacks took place four and six months later, the final attack after a lapse of seven years. The association with a nasal discharge was noted on the second and third attacks, whereas in the fourth attack the nasal discharge was absent but influenza was present. The causative organisms varied, but at no time was the identity of meningococci definitely established.

SUPPRESS NARCOTIC ABUSE

With the approval of the Board of Trustees of the American Medical Association, I write to urge the active co-operation of the Oklahoma State Medical Association with the Federal Commissioner of Narcotics and the proper officers of your own State in their efforts to suppress the abuse of narcotic drugs.

It was solely through the efforts of the American Medical Association that Congress recently authorized the co-operation between the Federal Government and the government of the several States, by providing:

"That the Secretary of the Treasury shall co-operate with the several states in the suppression of the abuse of narcotic drugs in their respective jurisdictions, and to that end he is authorized (1) to cooperate in the drafting of such legislation as may be needed, if any, to effect the end named, and (2) to arrange for the exchange of information concerning the use and abuse of narcotic drugs in said states and for cooperation in the institution and prosecution of cases in the courts of the United States and before the licensing boards and courts of the several states. The secretary of the treasury is hereby authorized to make such regulations as may be necessary to carry this section into effect."

An act to create in the Treasury Department a Bureau of Narcotics, and for other purposes, approved June 14, 1930, Section 8.

The influence of the Oklahoma State Medical Association in promoting the establishment of effective cooperation as contemplated by the act will go a long way, it is believed, toward determining whether the legislation that the American Medical Association proposed and sponsored will or will not be successful.

Wm. C. Woodward. Director

PHYSIOLOGY OF ATELECTASIS

Yandell Henderson, New Haven, Conn. (Journal A. M. A., July 13, 1929), asserts that closure of a bronchus or bronchioles is a determining factor in the development of pneumonia. The deep breathing induced by carbon dioxide has already proved capable of preventing such closure and keeping the lungs open. Inhalation of carbon dioxide thus offers a prophylaxis of probable value in the early stages of pneumonic infection. It may be of therapeutic value even in advanced stages of the disease.

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Local news of possible interest to the medical profession, notes on removals, changes in address, births, deaths and weddings will be gratefully received.

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EDITORIAL

THE ANNUAL MEETING DATES

At a recent meeting of the Council Committee the following action with reference to the next annual meeting, at Oklahoma City, was taken.

The dates, May 11, 12, 13, 1931, were selected. It has been tentatively decided that all meetings of Sections, housing of exhibits, President's reception and dance, except meetings of the Council and possibly one meeting of the House of Delegates, will be held in the Shrine Temple.

The Skirvin Hotel has been tentatively

selected as hotel headquarters. It was also decided that several prominent men from different lines of work, nationally and internationally known as authorities, will be invited to appear once or more before general meetings of the Association.

Two of the mornings of the meeting will be devoted in entirety to general meetings, dry clinics, and probably the showing of moving pictures, if satisfactory films can be secured.

OKLAHOMA CITY AS A CLINIC CENTER

Medical meetings at Oklahoma City are always well attended. The outstanding ability of its medical profession, the attractiveness of the city itself, due to its many social advantages and the fact that it is the State's medical and hospital center goes far toward assuring success of such meetings. The November meeting, known as the Annual Fall Clinics was no exception to the rule. Notwithstanding that it was not so widely advertised or over a long period of time it was eminently successful. The various clinics were made attractive by the importation of high class specialists from many lines of work and the various divisions of the work was in the hands of local men who conducted them with great ability. All the meetings were held at one place, the University Medical School auditorium.

More than 450 people attended the banquet at the Oklahoma City Club, while the smoker at the Skirvin Hotel, given upon the second night of the meeting, was a huge success.

It is the present plan of the sponsors of this clinic that it will hereafter be an annual event in Oklahoma medicine. They are to be congratulated upon their progressiveness and may be assured in advance that their meetings will grow in importance and value to the State's profession.

ANTIVIVISECTION PROBLEMS

Medical men, when first their attention is called to the propaganda of the *antivivisectionist* and the inexcusable hampering of the orderly advance in medicine and surgery brought about by such propagan-

da, are appalled, irritated and indignant. In England, a small, vociferous, wealthy and often untruthful and misguided minority succeed in seriously hampering the progress of medicine by securing the enactment of adverse legislation. For many years sporadic efforts, principally centering in Washington—as they believed the national government to be the best entering wedge—have been made by the *antivivisectionist* to secure legislation which if enacted, would at once begin to do an unbelievable amount of damage to the progress of medicine, as well as an unknown, incalculable amount of harm to humanity. People are very thoughtless, thoughtless of their own interests often. Only those who are students of scientific work will appreciate just what interference with experimental medicine means to the physician and the layman in all walks of life. The role which experimental medicine, coupled with necessary animal experimentation has played in the discovery of the cause, the prevention, treatment and control of disease, both in men and domestic animals is well enough known to the student, but is given no attention by the layman and very little by the physician.

There is now pending in the National Congress a piece of most dangerous and pernicious legislation, whose enactment would seriously hamper the study of diseases, affecting domestic animals as well as those of man. It is to be hoped that no member of the Oklahoma delegation in Congress will so far forget the brilliant achievements in preventive medicine as to be found allied with these propagandists. But unless his attention is specifically called to the dangers, he can easily be led in the wrong direction. The medical profession agrees at once that inhumane and unnecessarily cruel experimentation is to be deprecated and is inexcusable on the part of any experimenter and it is unbelievable that a scientist or student conducting experiments would permit an animal to unnecessarily suffer. But should such isolated cases occur the *antivivisectionist* avidly seizes upon that as the horrible example and proceeds to let down a barrage of criticism against *all experiments*. Those protestants seem to care not for the cruel methods by which the furs which keep them warm are secured, by the punishment often inflicted to secure their food, but they are greatly concerned over some worthless cur whose sacrifice may

eventually save the lives of children or worthwhile animals.

A more severe blow to the advance of American medicine, than the passage of this foolish legislation can hardly be conceived.

It should be remembered that in many instances our critics are themselves misled, so far as they are concerned, they are acting in good faith, they are not dishonest, merely misguided, misinformed, often hysterical reformers. In the past a great many hearings have been held and from time to time in Washington, great leaders of the medical profession have appeared to controvert the senseless claims of the propagandists and one defeat more or less means nothing to them. They simply return more rabid and misrepresentative than ever.

Charles W. Eliot has well said "The humanity which would prevent human suffering is a deeper and truer humanity than the humanity which would save pain or death to animals," and this should be often borne in mind by the physician. Just think for a moment what it would mean to the medical profession to be deprived of the use of the rabbit and guinea pig in the diagnosis and treatment of diseases, but just why one should be so concerned over the interest of a dog as against those of a child is beyond comprehension. The physician should remember the following diseases, all of which have been affected more or less and in various ways, directly and indirectly by some type or types of animal experimentation: cancer, rabies, tuberculosis, disease of children, syphilis, cholera, dysentery, typhoid, plague, diphtheria as well as other diseases. Animal experimentation has been absolutely necessary in the past to determine the effects of drugs, the phenomena of circulation, the problems of obstetrical pathology and countless sources of improved diagnosis of diseases.

Yandell Henderson, Journal of the American Medical Association, December 1, 1928, page 1737, pointed out the probable steps through which this dangerous legislation would be brought about. Due to the apathy of the medical profession it has been making decided progress.

It should not be forgotten that it is not rare to have a physician himself to undergo various forms of experimentation. It is not within our memory that two famous

Japanese physicians died as martyrs to the cause of science during their investigation which definitely settled the causative factor of the plague. It should not be forgotten that in Cuba when the determination of the cause of yellow fever hung in the balance two heroic American physicians lost their lives.

The writer is personally aware of the fact that two decades before the Kansas mountebank, Brinkley, was using his fake gland transplantations, a brave Chicago surgeon transplanted human glands into himself, and before he ever used them on any human. No true physician ever asks a patient to undergo any system of treatment that he would not himself undergo.

Editorial Notes—Personal and General

DR. A. L. DAVENPORT, Holdenville, sustained two broken ribs and bruises, and Dr. W. E. Floyd, Holdenville, received minor injuries in a car collision in Shawnee, in November.

GARVIN County Medical Society met November 19th, in the office of Dr. W. P. Greening. Their regular program consisted of a resume of the year's work done in the society.

DOCTORS LEROY LONG, LEROY D. LONG, WENDELL LONG, AND BERT F. KELTZ announce the organization of the Leroy Long Clinic, 714 Medical Arts Building, Oklahoma City.

WOODWARD County Medical Society met November 11th, when an educational film from the extension division of the University of Oklahoma was shown. A round table discussion concluded the program. Luncheon was served at the Masonic Hall.

THE AMERICAN COLLEGE OF SURGEONS, meeting in Philadelphia in October, conveyed Fellowship degrees upon the following Oklahoma physicians: Doctors Charles B. Barker, Guthrie; James E. Harbison, Oklahoma City; Dick Lowery, Oklahoma City; Lehnor A. McComb, Tulsa; A. Ray Wiley, Tulsa; Leonard Scott Willour, McAlester.

BRYAN County Medical Society met Tuesday, November 18, 1930, for their regular meeting, in the office of Dr. B. B. Coker. Dr. J. S. Fulton, Atoka, Councilor of the State Medical Association, was in attendance, also Dr. Gardner of Atoka. Dr. J. T. Wharton, Durant, read a paper on "Ether Anesthesia." Dr. Fulton read a paper on the subject of organization and accomplishments of the regular medical profession.

MUSKOGEE County Medical Society, November 16th, heard Dr. Rex Bolend, Oklahoma City, on "Features in Diagnosis and Treatment of Syphilis," and Dr. Shade Neely, Muskogee, on "Prostatitis, Non-Venereal."

December 1st, the society had presented Dr. Edward Martin's two-reel film on "Acute Appendicitis," and the film on Anatomy of the Abdominal Wall, from the Northwestern University, which is being circulated to county medical societies through the courtesy of the Petrolagar Company.

DR. O. E. SOMERVILLE, Bartlesville, Medical Director of the Phillips Petroleum Company, was host to many of the medical staff and others November 1st.

Lunch was served at the Hotel Marie, after which the visitors were driven 16 miles west to one of the show places of the United States, the wonderful establishment, game preserve and resting place of Mr. Phillips. There visiting physicians were shown over a vast estate of thousands of acres of hill land, dotted with large and small lakes, much of the land parked, the remainder protection to hundreds of head of buffalo, elk, Indian cattle and many species of deer collected from various parts of the world. The estate was a wonderful surprise to those who had not the pleasure of visiting it before.

Dinner was served to approximately fifty visitors, in the dining room of the lodge. The amplitude of the meal may be suspected when one is told that steaks from sacred Indian cattle, buffalo, elk and barbecued chickens were the only meats placed before the visitors. They were required to get along with other substances for the rest of the meal. After the meal the problems of "Traumatic Hernia," "Back Strains," and "Traumatic Arthritis," were discussed by Doctors C. O. Von Wedel, Earl D. McBride, Oklahoma City; Pat Fite, E. A. Welch and C. A. Thompson, Muskogee.

The hope was voiced that the meeting might become an annual event, and it was also amended that it be made to last a month. In other words it was a huge success.

Dr. Somerville and Mr. Phillips were the recipients of many good wishes over the occasion.

DOCTOR ERTON EDWIN POYNOR

Dr. E. E. Poynor, of Westville, died November 11, in Louisville, Ky., while attending the Southern Medical Association. Dr. Poynor had been in ill health for some time.

Dr. Poynor was born in Osage, Arkansas, in 1881. Graduated from the University of Arkansas Medical School in 1904.

He is survived by his wife, two sons and two daughters.

Interment was made in Green Forest, Arkansas.

DERMATOLOGY, X-RAY AND RADIUM THERAPY

Edited by C. P. Bondurant, M.D.
413 Medical Arts Building, Oklahoma City

Treatment of Pruritus Ani and Anal Fissure. W. B. Gabriel, Brit. M. J. 1:1070 (June 15) 1929.

An anesthetic of a 3% solution of anesthesin, with benzyl alcohol 5%, and ether 10% in sterilized olive oil is used as a subcutaneous injection by the author in the treatment of essential pruritus ani. The solution is injected subcutaneously in a fanshaped manner around the anal margin. Sixteen patients were successfully treated in this manner. The average injection was four cc, at one sitting, and the number of injections varied from one to six; one patient received as much as 22 cc of the solution. The author reports three cases of the treatment of rectal fissures. A slight burning was the only complication noticed.

Molluscum Contagiosum and Turkish Baths, C. G. Crowley, M. J. Australia 1:806 (June 15) 1929.

Molluscum Contagiosum is very rarely in Australia; English workers have called attention to the association of it with Turkish baths. This is warranted by a report of three cases seen within two days at Melbourne, a very unusual incidence. Each of the patients had been taking Turkish baths in the same bathing establishment.

Keratosis Punctata. H. C. Semon, Proc. Roy. Soc. Med. 22:349, 1929.

The author describes the case of a woman 45 years of age, a masseuse, who had an abnormal condition of her right hand for over fifteen years. The palm became sore after playing tennis. Groups of little horny plugs slowly formed on the red and rough areas. Their removal with a needle gave some relief, but the thickened ridges at points of flexion often caused lesions which caused disuse of the hand. Lesions were limited to the palm and flexor aspects of the first joints of the fingers and thumb of the right hand. There was general diffuse thickening of the skin in these areas, with chronic hyperemia of a passive type. The thickening was accentuated over points of greatest flexion, and there was a tendency to the production of transverse fissures, appearing not lower than the corneous layer. Small groups of pits the size of a pinhead were scattered over the affected region. The lens revealed minute keratinous plugs within some of the pits. The whole palm was dry and scaly. The studies of Hallopeau and Claisse (Bull. Soc. franc. de dermat. et syph., 1891, p. 116, on histologic grounds, assign to it a nevoid origin. Galloway and Adamson described two cases in a husband and his wife (cousins) and demonstrated them with microscopic slides to the Brit. J. Dermat. 30:123, 1918); his evidence supports the view still further. Dr. Adamson thought the case one of lichen planus, an impression apparently confirmed by the presence of white patches in the mouth.

Unusual Lichen Planus. H. W. Barber, Proc. Roy. Soc. Med. 22:351, 1929.

The author reports the case of an oval area of cicatricial atrophy of the scalp. The area was completely denuded of hair and red in color from

capillary dilatation; on vitropressure the dilated vessels were completely obliterated. This is an interesting case as it is combined with follicular keratoses on the trunk. The latter manifested itself on the buttocks and thighs in follicular lesions similar to lichen spinulosus. In the perineum and on the mucous membranes of the cheeks, typical lichen planus lesions were present. Dr. Graham Little (Brit. J. Dermat. 1915, 183), Dr. Dore (ibid., 295), and Dr. Wallace Beatty and Dr. Speares (ibid., 331), describe the case. It is difficult to avoid the conclusion that some cases, at least, of so-called folliculitis decalvans or pseudopelade are really cases of lichen planus, and that the "lichen spinulosus," described in association with it by several observers is merely the follicular variety of this disease.

Leukosarcoma. D. H. Flashman and S. S. Leopold, Am. J. M. Sc. 177:651 (May) 1929.

The case of a man, aged 60 is reported by the authors; his history revealed that he had a swelling in the right inguinal region for twelve months. A biopsy showed lymphosarcoma, and a roentgenogram revealed a tumor in the pelvis. His blood examinations were negative during the period of about five months in which he was given roentgen treatments. His leucocyte count was normal, until the month following the treatments, when he developed a leukemia. The white blood count rapidly increased to 444,000 cells per cubic millimeter at the time of death, and the differential blood count showed from 90 to 96 per cent small lymphocytes. A primary, invasive lymphosarcoma in the inguinal and retroperitoneal regions was indicated by an autopsy; also an extensive involvement of most of the lymphoid system, liver, spleen and bone-marrow of the right femur and metastatic nodules in most of the organs. Different degrees of hyperplasia, or differentiation were represented within the tissues by large lymphoblasts and small lymphocytes with various combinations and intermediate types. The case falls in the group of leukosarcoma, although it appears intermediate between typical lymphosarcoma and lymphatic leukemia, rather than a combination of the latter two.

Local Treatment of Burns. E. Makai, Munchen. med. Wchnsdhr. 76:574 (April 5) 1929.

Makai has used pure kaolin powder or kaolin powder with an admixture of tannin or some similar drug for the treatment of burns. The powder is sprinkled daily on the burnt surface to a thickness of about 3 or 4 mm, and then covered with some gauze compresses and a thin layer of zinc oxide ointment. The wound secretion is absorbed by the thick layer of powder, and the formation of crusts is prevented by the thin layer of zinc ointment over the gauze. The daily changing of dressing is thereby made painless; the elimination of the necrosed tissues and the epithelization of the burned surface are very rapid. The author states that in a very severe and extensive burn (of the second and third degrees), the patient had a high fever, and a toxic exanthema. With the treatment described above the patient recovered in four weeks with only a small defect in the epithelization of the wound. Makai has used this method successfully for ten years.

Cancer Following Burn. H. Stauffer, *Ztschr. Krebsforsch.* 28:418 (March 20) 1929.

The author groups the cases of cancer following burns into divisions: instances of cancer developing in a burn itself and cases of cancer developing in the scar of a burn. The former type is rare, but the latter type is very frequent. The author has given summaries of the case reports in all the instances of true burn cancer. He also reports the case of a man 66 years of age, whom he personally observed. Thirty days after a flame burn was received on his cheek, a typical canceroid developed in the noncicatized burn.

ORTHOPAEDIC SURGERY

Edited by Earl D. McBride, M.D.
717 North Robinson Street, Oklahoma City.

The Nature of Arthritis, With Consideration of The Rationale Underlying Some Forms of Physiotherapy Useful in This Disease. Ralph Pemberton. *Radiology*, XII, 235, March 1929.

Arthritis is the oldest known disease, and afflicted the dinosaurs long before the advent of man. Interest in it is being brought around by the realization that it constitutes one of the great scourges of society. Rapid progress in its treatment began with the recognition of focal infection as a cause. This, however, constitutes only a part of the problem.

Recent study has shown that a fifth of all cases show a decrease in basal metabolism. Metabolism of nitrogen, fats, calcium, phosphorus and uric acid seems normal, but there is a delayed removal from the blood of ingested glucose, which closely parallels arthritis and focal infection. With removal of a causative focal infection and cure of the arthritis, the delayed removal of sugar returns to normal. With the delayed removal of glucose, there is a delayed utilization of oxygen in the smaller vessels, apparently due to a change in circulation, a tendency toward vasoconstriction, with a relative anemia, in some of the tissues. This can, to some extent, be counteracted by vasodilator drugs.

Study of the capillaries of the arthritic shows that these contain less blood than normal, and a more sluggish, interrupted stream. Hypertrophic arthritis has been produced experimentally by interference with circulation.

It is known that exercise, massage and heat are among the most useful measures in treatment of arthritis. Their benefit probably depends upon their influence on circulation. Exercise has been shown to induce a systemic acidosis, while heat, systematically applied, leads to an alkalosis induced by the loss from the body of acid bodies, chiefly carbonic acid, from overventilation of the lungs. Massage, while partaking somewhat of the nature of exercise, cannot be shown to have any such influence on the acid-base equilibrium as either heat or exercise.

Both heat and exercise increase the circulation and cause a sharp rise in the oxygen percentage saturation of the peripheral blood and an increase in the red-cell count. Massage also increases the red-cell count. Evidently, the effect upon arthri-

tis of exercise, heat and massage is due to their influence on the peripheral circulation.

Polyarthritis: Further Studies on the Effects of Sympathetic Ganglionectomy and Ramisectomy. Leonard G. Rowntree and Alfred W. Adson. *J. Am. Med. Assn.*, XCIII, 179, July 20th, 1929.

In March 1927, a report was made of the early results from lumbar ramisectomy on a case of severe multiple arthritis. On observation in October 1928, there was so much improvement that ganglionectomy was done for relief of symptoms in the upper extremities.

The patient, a young woman, stenographer, had been hopelessly ill for six years with progressive changes in all extremities from arthritis deformans, the joints swollen, contractions present, kin shiny, nails brittle, cold, clammy extremities, bathed in sweat with tenderness and pain on motion. Bilateral ganglionectomy was done in June 1926, with immediate and complete relief of symptoms in both legs. In October 1928, she returned with practically normal function in the lower extremities. The skin was warm and dry, motion free and painless, but some crepitation, particularly in knees, and no appreciable change in roentgenograms before operation and two and one-half years later. During this period of freedom from symptoms in the lower extremities, there had been progressive increase in the involvement throughout the joints of the upper extremities.

In November 1928, a bilateral cervicodorsal ganglionectomy was done, and immediately the hands became warm and dry, the capillary circulation improved, and early relief from pain and stiffness incident to the arthritis followed.

There were some minor complications from this operation, but the general improvement was satisfactory, though there was occasional return of arthritic pains in wrists and elbows four months after operation.

Complications incident to the cervicodorsal operation were Horner's syndrome, tachycardia, elevation of blood pressure, and disturbance to sweating mechanism. Five months after operation, Horner's syndrome persisted, but the blood pressure was normal in all extremities and the patient comfortable and happy.

A Further Contribution to The Knowledge of Birth Palsy. B. Valentin. *Ztschr. f. orthop. Chir.*, LL., Heft 1, 1929.

Without pathologic material, the determination of the site of the lesion causing palsy of the shoulder girdle is bound to be uncertain at best. The author does not believe that the majority of cases are the result of a faulty birth mechanism as most observers have taken more or less for granted. He maintains that no one theory will explain all the cases. Injuries to the plexus certainly do not occur in many.

He recounts in detail a case in which a male infant was born without known trauma. The infant did not breathe for some time and resuscitation by swinging was resorted to. Four days after birth, the child first began to move the right arm but weakly and the left in a similar fashion. The neurological findings were such that a competent neurologist diagnosed a bilateral plexus injury of the

seventh cervical and first dorsal vertebrae. Twelve weeks after birth the child died, having evidenced all the time signs of some intracranial disturbance. The only relevant maternal history consisted of three injections of typhoid serum during her pregnancy.

Postmortem revealed no injury of either plexus, but an area of degeneration in the lower cervical and upper dorsal gray matter, two to three centimeters long, corresponding to the seventh and eighth cervical vertebrae. This malacic area contained no old blood or hemosiderin containing cells. Glial proliferation was extreme. Other regions of the cord quite distant from the area showed similar gliosis—as in the nucleus arciformis of the medulla oblongata.

The author is inclined to believe the multiple lesions are possibly of infectious origin as similar changes would occur in typhoid, for example. At the time of death, no evidence of old blood were present, yet the possibility of the flexion and extension movements of the vertebral column during resuscitation being at fault cannot be ruled out.

In general, the author feels the traumatic factor in the production of birth palsy has been overestimated, especially in so far as plexus injuries are concerned, and feel the etiology is to be confirmed by pathological check-up if the opinion is to be of any value.

BOOK REVIEWS

Treatment of Epilepsy. By Fritz B. Talbot, M. D., Clinical Professor of Pediatrics, Harvard University Medical School; Chief of Children's Medical Department, Massachusetts General Hospital. New York, The MacMillan Company, 1930. Price \$4.00.

This is a 308 page volume, containing 19 chapters and an extensive reference to the literature. Professor Talbot says that not until 1928 when Lennox and Cobb presented a monograph on epilepsy was the present day conception of treatment outlined. It is his intention that this book on treatment supplement that of Lennox and Cobb. The author places great importance in the use of the Ketogenic diet in the treatment of epilepsy and states that it has been used with success for a sufficiently long time to justify its classification among the important new methods of treatment.

Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 10, number 5. (Pacific Coast Number, October, 1930.) 271 pages with 136 illustrations. Per Clinic year (February 1930 to December 1930.) Paper \$12.00; Cloth, \$16.00. Philadelphia and London.

Physical Diagnosis. By Warren P. Elmer, B. S., M.D., Associate Professor of Clinical Medicine, Washington University, School of Medicine; Assistant Physician to Barnes Hospital; Physician-in-Charge Missouri Pacific Hospital; Consulting Physician to Jewish Hospital, St. Louis, and W. D. Rose, M.D., late Associate Professor of Medicine in the University of Arkansas, Little Rock, Arkansas. With Three Hundred Thirty-

seven illustrations. St. Louis, The C. V. Mosby Company. Price \$10.00.

Readers will remember that the late Dr. W. D. Rose devoted much of his lifetime to physical diagnosis. Much of the work has been rewritten in this volume, but Dr. Elmer has rearranged the matter so it is now divided into two parts. Part one, *The Technic of Physical Examination and Physical Examination of The Normal Body*; Part two, *Physical Diagnosis of Diseases of the Respiratory and Circulatory Systems*.

Legal Medicine and Toxicology. By Ralph W. Webster, M. D., Ph. D., Late Clinical Professor of Medicine (Medical Jurisprudence) in Rush Medical College, University of Chicago, Chicago, Ill. 862 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$8.50.

This is a volume of twenty-two chapters; it is modern in every respect and naturally enters into many of the legal phases of medicine. Identification of the living and dead, types of death, wounds and injuries in their medico legal aspects, various examinations, composes approximately half of the volume, while the remainder considers the aspects of poisoning of many types.

Text-Book of Gynecology. By Arthur H. Curtis, M.D., Professor and Head of the Department of Obstetrics and Gynecology, Northwestern University Medical School; Chief of the Gynecological Service, Passavant Memorial Hospital, Chicago. 380 pages with 222 original illustrations. Philadelphia and London: W. B. Saunders Company, 1930. Cloth, \$5.00.

The author states that his work on Gynecology received such favorable consideration he felt impelled to write a more complete text upon gynecology. He intends the work to be a simple record of his own experiences. All of the illustrations are original except in four instances they are actual reproductions from the author's personal cases.

The Surgical Clinics of North America. (Issued serially, one number every other month.) Volume 10, No. 3. (New York Number, June 1930). Octavo of 265 pages with 123 illustrations. Per Clinic Year, February 1930 to December 1930. Paper, \$12.00; Cloth, \$16.00 net. Philadelphia and London: W. B. Saunders Company, 1930.

This is a good issue. Space prohibits mentioning all the articles. Drs. Eugene H. Pool and Roland W. Hipsley present a clinic on "The Effects and Results of Splenectomy in a Variety of Conditions"; these conditions consist of: "Thrombocytopenic Purpura," "Malarial Splenomegaly," "Splenic anemia," "Gaucher's disease," "Von Jaksch's anemia," "Splenic anemia with yellowish-brown inclusion bodies in the spleen."

Dr. Edward Beer considers the use of "Uroselectan as an Intravenous Pyelograph. Uretrograph, and Cystograph Medium (Swick)."

Dr. William Francis Horan, presents "Surgery in Selected Types of Pulmonary Tuberculosis";

Dr. Charles Murray Gratz presents a number of orthopedic conditions, of special interest is that on "Pathologic Fractures";

Drs. William L. Sneed and H. Eugene Reading present "Fractures of the Spine";

Dr. Ira Cohen presents "The Role of Syphilis in Three Surgical Cases";

Dr. Charles J. Imperatori presents "Nonopaque Foreign Bodies in the Bronchi"; While Dr. Gaston Labat, presents "The Trend of Subarachnoid Block."

ACUTE OSTEOMYELITIS

This report made by Dean Lewis, Baltimore (Journal A. M. A., March 9, 1929), is based on a study of 229 cases of osteomyelitis. A differentiation is not made between acute and chronic cases. In one of the cases cited, operation was performed within eleven hours after the onset. The patients were, however, rarely admitted to the hospital until from four to seven days after the beginning of the attack. There are included in this study eighty-eight cases of osteomyelitis of the femur. Nine of these patients died. Three deaths followed attempts at removal of large, almost total, sequestrums. This indicates that too radical a procedure should not be attempted in patients whose resistance has been lowered by long illness. The remaining six deaths were due to general pyogenic infections with metastases. Three of the patients with osteomyelitis of the femur were unimproved; fifty-nine, or 67 per cent, were discharged as improved, while seventeen, or 19.3 per cent, were discharged as cured. The percentage of improvement is high, but improvement usually means a discharging sinus or unhealed wound and indicates that surgery has not attained its aim—a healed wound. Some effusion or other evidence of joint involvement was noted in a relatively large proportion of cases. The knee was involved in forty-four of the eighty-eight cases, the hip in twenty-five and the hip and knee in seven. There were sixty-one cases of osteomyelitis of the tibia; two deaths occurred in this group. The two deaths were due to general infections. There were sixty-three cases of osteomyelitis of the humerus. One death occurred in this group; forty-nine patients were discharged as improved, one as unimproved and twelve as well. The elbow was involved in twenty-one and the shoulder in nineteen of these cases; both the shoulder and elbow were involved in five, and in 64.5 per cent one or both joints were involved. One cannot but be struck by the number of patients, about 50 per cent who were discharged as improved. Multiple operations were required for recurring attacks and abscesses. Because such recurrences are so common, some surgeons believe that osteomyelitis is never cured. The author believes that some of the operations which have been suggested for osteomyelitis are harmful. Any operative procedure employed in the treatment of acute osteomyelitis should have as its object the prevention of general infections, the limitation of sequestration or reduction in the size of the sequestrums, and the prevention of deformities. As is indicated by the figures cited in the 229 cases discussed in this series, acute pyogenic osteomyelitis still remains a surgical problem. The importance of an early diagnosis is emphasized. The diagnosis must be based on pain, which is the constant, predominant and earliest symptom of acute osteomyelitis, and a definite localized point of tenderness limited in area and not found over the surrounding bone. During the first twenty-four to thirty-six hours, pain, localized tenderness and fever may be the only symptoms of the disease, as the inflammatory process

is confined to the interior of the bone and has not yet reached the periosteum, when redness, edema and induration of the skin are noted. If the sequelae of acute osteomyelitis—discharging sinuses or reformation of sequestrums—are to be avoided, the diagnosis must be made early and an early operation performed. When the diagnosis is made the supporting focus should be drained by a trephine opening or a burr, and the tension immediately relieved. If a subperiosteal abscess has formed, this should be drained and further stripping of the periosteum or injury of the bone carefully avoided. Removal of the sequestrum should be delayed until it is fully separated, for it is impossible to determine what bone is viable before separation has occurred, and the injury of surrounding viable bone be followed by sequestrum formation later. The radical operation does not lessen the incidence of general infection. Radical removal of an infected marrow with a curet may favor the development of general infections and destroy bone. The development of deformities should be prevented. The surgeon can prevent these. The possibility of a dorsal dislocation of the hip should always be kept in mind in inflammatory processes about the hip, especially in osteomyelitis of the upper and posterior part of the rim of the acetabulum, which is supplied by an artery that may be closed by an infected embolus. Improvement in the treatment of acute osteomyelitis depends on early diagnosis and the resort to drainage of the inflammatory focus in the bone. Periosteal stripping should be prevented. If a subperiosteal abscess has formed, this should be incised. Removal of the sequestrum should be postponed until it has completely separated, so that in removal healthy surrounding bone will not be injured by operative procedures. Trauma to surrounding bone may lay the foundation for the formation of a new sequestrum.

ACUTE YELLOW ATROPHY OF LIVER FOLLOWING ADMINISTRATION OF OXYL IODIDE

S. D. Anderson and D. P. Teter, Chicago (Journal A. M. A., July 13, 1929), state that cases cited in the literature suggest that cinchophen in its various forms is a source of danger to certain patients. The danger does not appear to be proportional to either the amount of the drug taken or the period of time of its administration but to be dependent on some idiosyncrasy or other condition in the patient. The data available are insufficient to permit any opinion as to the nature of the possible factors that are responsible for the special susceptibility to the action of this drug. Oxyl iodide is used, like cinchophen, in the treatment of chronic arthritis, neuritis and myositis. It is said to contain "one part of iodine to five parts of phenylcinchoninic acid, two parts of the latter in chemical union with one part of iodine." The drug is a mixture of two parts of cinchophen chemically combined with one part of iodine and three parts of uncombined cinchophen; that is, 83.3 per cent cinchophen and 16.7 per cent iodine. The authors report a fatal case of oxyl iodide poisoning resulting from taking approximately 600 3-grain tablets of this drug during 8 months. The autopsy report is given in detail.

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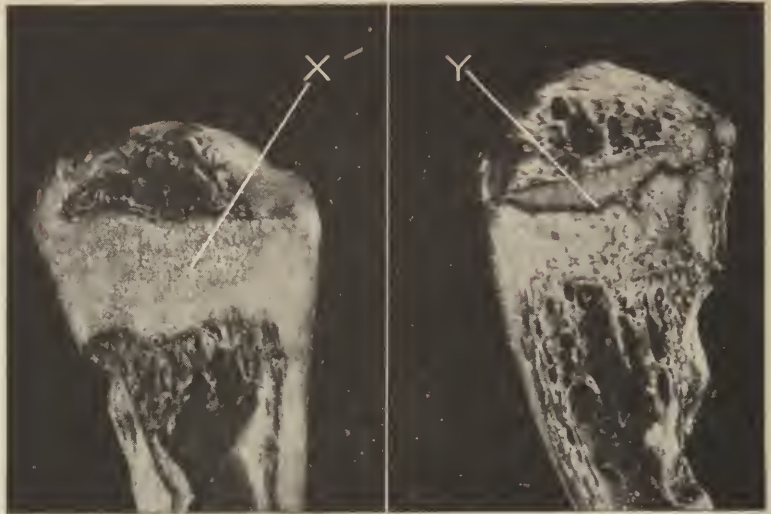
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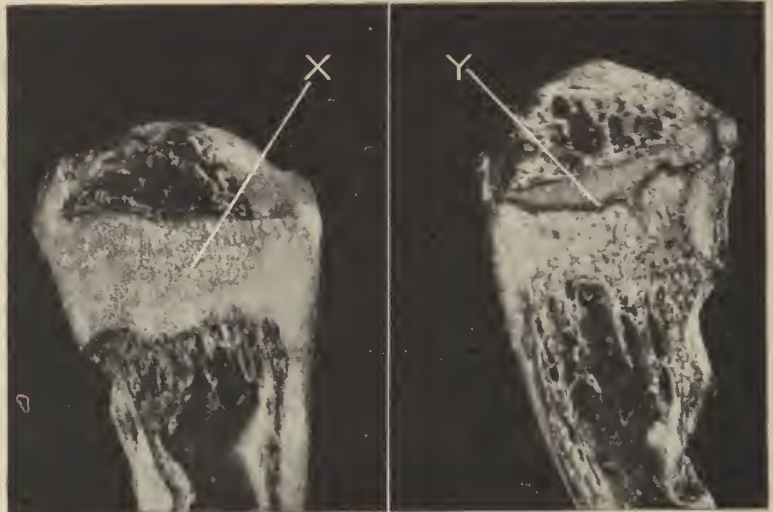
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To test for *vitamin A* potency the oil is given orally to young albino rats which have been fed on a diet free from vitamin A. We ascertain how much oil is needed daily to correct the induced typical eye condition (xerophthalmia) and to institute a specified rate of growth. The daily minimum amount of oil required to bring about this change constitutes one vitamin A unit.

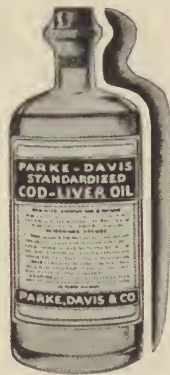
Every lot of Parke-Davis Standardized Cod-liver Oil must contain not less than 13,500 units of vitamin A in each fluid ounce.

In determining *vitamin D* potency we use our quantitative adaptation of the "line test" technique of McCollum, Simmonds, Shipley, and Park. The oil is fed to young rats in which rickets has been induced. We measure the minimum amount of oil required per day over a period of ten days to initiate recalcification in the leg bones. This amount represents one vitamin D unit. Each fluid ounce of Parke-Davis Standardized Cod-liver Oil contains not less than 3000 vitamin D units.



Illustrating "Line Test" method of standardizing Vitamin D content. At left, the leg bone of a rachitic rat showing induced decalcification area {X}. At right, healing has begun, as evidenced by initiation of recalcification at dark line {Y}.

Parke, Davis & Company was the first commercial laboratory to assay Cod-liver Oil for both vitamins A and D. Parke-Davis Standardized Cod-liver Oil is backed by years of research work in various phases of nutrition chemistry. Quite aside from its vitamin richness, this product has other distinguishing features which will appeal to you. It is clear, bland, and as nearly tasteless and odorless as a pure Cod-liver Oil can be. May we suggest that in prescribing Cod-liver Oil for your patients you specify the Parke-Davis product?



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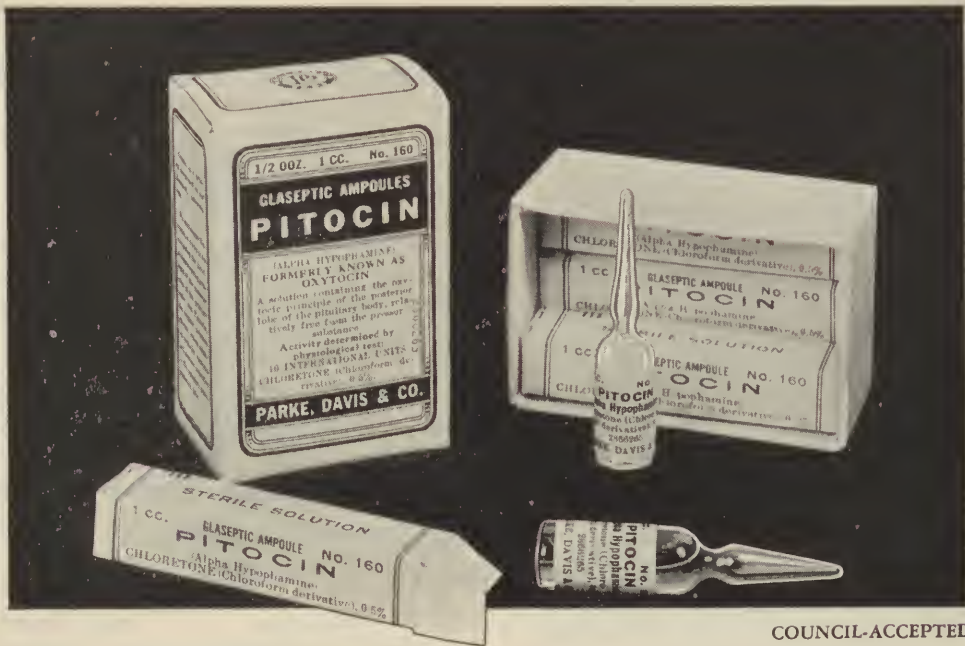
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